

The NATIONAL HORTICULTURAL MAGAZINE



APRIL - - - 1929

The American Horticultural Society

A Union of The National Horticultural Society and The American Horticultural Society, at Washington, D. C. Devoted to the popularizing of all phases of Horticulture: Ornamental Gardening, including Landscape Gardening and Amateur Flower Gardening; Professional Flower Gardening and Floriculture; Vegetable Gardening; Fruit Growing and all activities allied with Horticulture.

PRESENT ROLL OF OFFICERS AND DIRECTORS

March 1, 1929

OFFICERS

President, F. L. Atkins, Rutherford, N. J.
First Vice-President, F. L. Mulford, 2400 Tunlaw Road, Washington, D. C.
Second Vice-President, Mrs. Francis King, Alma, Mich.
Secretary, D. Victor Lumsden, 1629 Columbia Road, Washington, D. C.
Treasurer, Otto Bauer, 1216 H Street N. W., Washington, D. C.

DIRECTORS

TERMS EXPIRING IN 1930

Miss Mary McD. Beirne, Ashland, Va.
Mrs. Mortimer Fox, Peekskill, N. Y.
Dr. Harrison Howe, Washington, D. C.
Prof. A. P. Saunders, Clinton, N. Y.
J. C. Wister, Germantown, Philadelphia, Pa.

TERMS EXPIRING IN 1931

Miss Isabel Busbee, Raleigh, N. C.
Frank W. Campbell, Detroit, Mich.
Mrs. L. H. Fowler, Washington, D. C.
Fairman R. Furness, Media, Pa.
J. Marion Shull, Chevy Chase, Md.

AFFILIATED SOCIETIES

GEORGIA STATE HORTICULTURAL SOCIETY.

G. H. Firor, Secretary, Athens, Ga.

ALBEMARLE GARDEN CLUB.

Mrs. Allen Perkins, President, Middlebrook Hills, University, Va.

ALEXANDRIA, VA., GARDEN CLUB.

Care of Miss Mary Lindsey, President, Braddock, Alexandria, Va.

GALESBURG HORTICULTURAL AND IMPROVEMENT SOCIETY.

C. Z. Nelson, Secretary, 534 Hawkinson Avenue, Galesburg, Ill.

GARDEN CLUB OF HAGERSTOWN, MD.

Care of Mrs. Marshall Wilson, President, The Terrace, Hagerstown, Md.

GARDEN CLUB OF SOMERSET HILLS, N. J.

Care of Mrs. Marshall Sandford, Far Hills, N. J.

GEORGETOWN GARDEN CLUB.

Mrs. J. B. Gordon, 2917 Q Street N. W., Washington, D. C.

LOS ANGELES GARDEN CLUB.

2530 West 8th Street, Los Angeles, Calif.

ST. LOUIS HORTICULTURAL SOCIETY.

821 Central National Bank Building, St. Louis, Mo.

BOBBINK & ATKINS

ASK FOR
CATALOGS



VISIT
NURSERIES

ROSES

SPRING PLANTING

We have several hundred thousand two-year-old, low-budded, field-grown Rose plants in several hundred varieties ready to ship this spring.

"Roses by Bobbink & Atkins," our revised Rose Catalog, is profusely illustrated in color. Many new and rare varieties have been included; an extensive list of Climbing and Roses adapted to all parts of the country are described and priced. Descriptions are given with comments on their merits and demerits. All are classified and arranged to help the buyer.

HARDY HERBACEOUS PLANTS

Our catalog, Hardy Herbaceous Plants, contains a complete list of Old-fashioned Flowers and Rock Garden Plants, many of which we have growing in pots. Beautifully illustrated in color and black. It contains an alphabetical table of Hardy Herbaceous Plants, indicating flowering period, height and color.

EVERGREENS, TREES, SHRUBS AND VINES

An illustrated catalog of Hardy Azaleas, Conifers, Evergreens, Hardy Broad-leaved Evergreens, Flowering Shrubs, Hedge Plants, Hardy Vines, Lilacs, Rhododendrons, Shade Trees.

OUR SPECIALTIES

Chinese Magnolias, Evergreen Azaleas, Lilacs, Japanese Maples, Koster and Moerheimi Blue Spruce, Rare Flowering Shrubs, Red Dogwood, Weeping Flowering Cherries.

VINES AND CLIMBERS

Ampelopsis, Aristolochia, Bignonias, Cotoneasters, Euonymus in variety, Honeysuckle, Ivies, Silver Lace Vine, Wisterias.

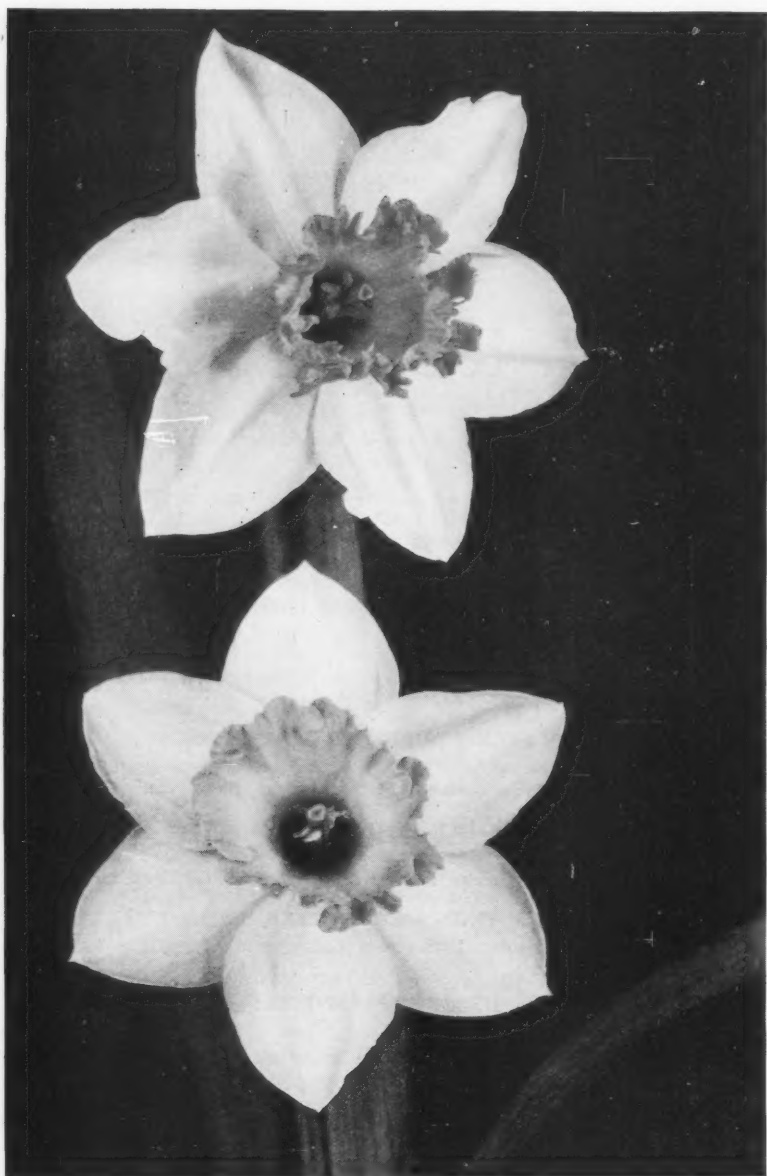
HEART CYPRESS TUBS

We take pleasure in directing the attention of our patrons to our Plant Tub Manufacturing Department. These are described in our special Tub Pamphlet. Estimates furnished for special tubs.

In your request for catalog, it is important to state definitely what you intend to plant. We issue several catalogs.

Nurserymen and Florists

Rutherford, New Jersey

*'Lilian A. Guernsey**Narcissus, The Fawn and Irish Pearl*

[See page 86]

The National Horticultural Magazine

B. Y. MORRISON, *Editor*

SHERMAN R. DUFFY, BERNARD H. LANE, J. MARION SHULL, HAMILTON TRAUB,

Contributing Editors

Vol. 8

Copyright, 1929, by THE AMERICAN HORTICULTURAL SOCIETY

No. 2

APRIL, 1929.

Dr. Walter Van Fleet. By FURMAN LLOYD MULFORD	52
The Manufacture of Incense. By P. H. and J. H. DORSETT	61
The Lilies. By H. CORREVON. Translation by B. H. LANE	65
Types of Peonia Albiflora. By MRS. EDWARD HARDING	71
Peonies for Exhibition	72
A Shopper's Guide	74
Words	76
The Gardener's Pocketbook:	
Autumn Crocuses	77
Extermination of Moles	79
<i>Hesperis nivalis</i>	79
<i>Statice latifolia</i>	81
<i>Dodecatheon meadia</i>	81
<i>Phlox stellaria</i>	84
<i>Cotoneaster divaricata</i>	84
<i>Iris spuria</i>	84
Narcissus, "The Fawn" and "Irish Pearl"	86
Papaver	86
<i>Lilium sargentiae</i>	90
Trenching—Pro and Con	90
Seeds	92
A Book or Two	95

The magazine in this issue reflects the coming June show in the special notes related to peonies, for our society is to have the great pleasure of being host to The American Peony Society in its annual exhibition to be held in Washington June 7-8. Further details of the show will be sent to members in due season. We are most happy to have these guests and the magazine is happy to have articles from Mrs. Harding and from Mr. Little arranged by Dr. White, all three members of both organizations. Plans for the show are developing amazingly and promise one of the finest shows that has ever been held, thanks to Dr. White and the cooperation of all he has approached.

In the remainder of the magazine you will find continuations of all the departments that have been inaugurated save that of Planting and Design. This will appear again in the next issue, having been displaced by other papers at this time. And in The Gardener's Pocketbook, which is the editor's favorite department, you will find for the first time correspondence in which there is a difference of opinion. It probably will never be that we shall rival our contemporary, The Forum, and become a "Magazine of Controversy," but let us have and enjoy a difference of opinion and practice. It is of the greatest value, as the editor discovered this winter in a trip to Florida, where he found cover crops raised to be mowed down but not dug under, the exact opposite of the practices with which he is familiar.

Published quarterly by The American Horticultural Society, Washington, D. C. Editorial Office, 116 Chestnut Street, Takoma Park, D. C. Contributions from all members are cordially invited and should be sent to the above address. Advertising Manager, Margaret C. Lancaster, 6615 Harlan Place, Takoma Park, D. C. A subscription to the magazine is included in the annual dues of all members; to non-members the price is seventy-five cents the copy, three dollars the year.

Dr. Walter Van Fleet

BY FURMAN LLOYD MULFORD

The honor that is due those who have made the world a more beautiful place in which to live certainly belongs to Dr. Walter Van Fleet. He was one of the greatest plant breeders this country has had and he gave especial attention to roses. From boyhood he was interested in natural history and plant growing and the products of his unremitting and painstaking energy, combined with unlimited patience, are known to garden lovers all over the country as well as in foreign lands.

Walter Van Fleet was born at Piermont, Rockland County, New York, not far from the northern end of the Palisades of the Hudson, on June 18, 1857. His ancestors came from Utrecht, Holland, to New Amsterdam in 1662, a later generation moving to the Mohawk Valley. His parents were Elvira and Solomon Van Ruesselean Van Fleet. He had a brother older and two sisters younger than himself. The family moved from Piermont, New York, to Duboistown, Pennsylvania, and then across the river to Williamsport, Pennsylvania, when he was very small; and a little later to Watertown, Pennsylvania, where he spent most of his boyhood on a small farm that his father handled while principal of the Watertown Academy. As children, he and the sister nearest his own age had their own plots in the family garden, which were a source of delight to them.

While still a lad, Walter spent several weeks one winter at Ipswich, Massachusetts, learning taxidermy from Chas. J. Maynard, taxidermist and writer on nature topics. In the late summer of 1875, Mr. Maynard and William Knowlton of Boston spent six weeks in the Van Fleet home. While there Walter helped them in securing and preparing specimens for

a museum. The following June Mr. Maynard thought he saw an opportunity to open a branch store in Williamsport and arranged with Walter to manage it. Mr. Maynard stayed there with him until August, but a few months later they closed out. About this time Walter taught his craft to Chas. F. Eldon and other successful taxidermists.

Early in 1876 he published an article on the Rough Winged Swallow in the first number of the Nuttall Bulletin which a few years later was called the Auk. In 1886 and the two following years he published several articles on birds in Frank Leslie's Popular Magazine, and in 1888 a book for children on some of our common birds.

In 1877 the family again moved to Williamsport. Soon after Walter signed a contract to go to South America with the Collins Construction Company that was about to build a railroad on the upper tributaries of the Amazon near the Falls of the Madeira. In February, 1878, he sailed from Philadelphia on the *City of Richmond* without his parents' knowledge. His work was wood chopping, which took so much of his time that he apparently found but little left in which to make short excursions into the jungle with his shot gun. While working here he had an attack of tropical fever and was nursed in the hut of an Indian, where, on regaining consciousness from the delirium which came with the fever, he saw an American sewing machine. The sight of it not only astonished him but made him very homesick. Later, during a severe rainstorm, he deserted the company by swimming a river with his clothes tied on his head. On reaching the shore of an island he met an Indian by appointment who took him and at

least one other on a dangerous canoe trip down the swollen river as the first part of the return journey.

Early on this South American trip, probably on ship board, he met Maurice Mauris, really Count Calenzana of Italy, who, for the sake of the adventure, was acting as publicity agent of the expedition. They formed a strong friendship for one another, even though the Count was much older than Walter. The Count not only befriended him when he was ill, but advised with him and helped him to run away from the company and soon joined him for the return trip. Together they did some travelling in western Brazil before returning to the United States, sharing experiences and hardships. They finally reached this country late in July, 1878. The Count visited the Van Fleet home that fall and the friendship continued until the death of the Count several years later.

Walter Van Fleet began the study of medicine in the fall of 1878, graduating from the Hahnemann Medical College in Philadelphia, in 1880. He then took up the practice of medicine in Watsontown, Pennsylvania, going to Duboistown, Pennsylvania, in 1883. On August 7, 1883, he married Sarah C. Heilman of Watsontown, who proved to be a sympathetic and helpful companion to him both in his medical work and in his plant breeding. They moved to Renovo, Pennsylvania, early in 1885, where in addition to a general practice he became assistant surgeon and later surgeon for the Northern Central Railroad. In the session of 1886-87 he took a post-graduate course at the Jefferson Medical College in Philadelphia, his wife at the same time taking a course in nursing.

Before establishing himself in Renovo arrangements had been completed for him and Mrs. Van Fleet to accompany Dr. Lambert and party on a trip to Africa to study the animal life of that continent. Dr. Van Fleet was to be the photographer for the expedition. With this in view he had

been put in touch with the best photographers of that day so that he might have the best possible information. After he had gone to New York for the final arrangements and before Mrs. Van Fleet, who was to accompany the party, had joined him, Dr. Lambert was taken sick and died before the trip could be undertaken.

About this same time he made a trip to Nicaragua and the Isthmus of Panama. He desired his friend Chas. H. Eldon, the taxidermist, to accompany him, but as Mr. Eldon was not in sufficiently good health at the time, Doctor Van Fleet went alone. The trip was planned primarily for bird collecting in Nicaragua, the Smithsonian Institution of Washington to have the first opportunity to select from any specimens that might be secured. On arriving in Nicaragua he found there was an insurrection in progress, so he did not stay long but went on to Panama, where work on the French canal was in progress. With the aid of the company that desired such publicity as he could give through an arrangement he had made with a Philadelphia newspaper, he was enabled to visit all parts of the Isthmus, and by using the railroad then in operation and doing much walking he was able to get pictures and bird specimens. He returned to the United States in about five months.

During his boyhood he devoted his spare time to the growing and crossing of plants, doing his first breeding at the age of twelve. Later, while he was practicing medicine he began systematic work along these lines, first with gladioli and cannas. The fact that in 1891 he gave up a successful practice of medicine to devote himself to plant breeding is indisputable proof of his great love for the work. After this change his first efforts were directed primarily to the gladiolus on a farm on the Alexandria and Mount Vernon turnpike, not far from Mount Vernon, Virginia. Unfortunately, the soil was not adapted to his purpose so he abandoned the

project in 1892. In order to extend his practical experience in horticulture and to prepare himself for any opportunity that might arise to devote his whole time to plant breeding, he engaged himself as a laborer to the Dingee and Conard Company at West Grove, Pennsylvania. By the end of the first year he was doing editorial work on a florist paper published by the firm and devoting the rest of his time to plant breeding.

In 1894 when the Dingee and Conard Company reorganized, he went to Little Silver, New Jersey, and became managing editor of *Orchard and Garden*, published by the J. T. Lovett Company. There he purchased six acres adjoining J. T. Lovett's, where he built a home with a small greenhouse attached, and here, in his spare time, started plant breeding, using a great variety of plants. This place was later to become known as the "Rural Grounds." When *Orchard and Garden* was discontinued in 1895 he again attempted to make a living from the sale of his originations and make plant breeding a profession.

He became interested in the Ruskin Colony at Dickson, Dickson County, Tennessee, and joined it in November, 1897. Though acting as colony physician he asked to be assigned to the horticultural department which J. A. Kemp had established there in 1896. It was here he spent most of his time. Dissensions arose in the colony and in August, 1899, he returned to his home in Little Silver, New Jersey, and continued his breeding work there for ten years.

In October of 1899 he became Associate Editor of the *Rural New Yorker*. The following spring the *Rural New Yorker* established trial grounds on his place at Little Silver and J. A. Kemp helped him in conducting these grounds for three years. For the next ten years Dr. Van Fleet continued as Associate Editor of the *Rural New Yorker*, during which time he supplied much valuable information on plant growing and plant

life, his column of "ruralisms" being especially interesting and instructive. A service for which the *Rural New Yorker* has an outstanding reputation, that of exposing fraudulent firms, practices and get-rich schemes, was inaugurated by him, and it was considered a dull week indeed that did not bring a threat of a suit for libel. At the time of severing his official relations he had arisen to the post of vice-president of the Rural New York Publishing Company which he had held since 1902.

The accomplishments of Dr. Van Fleet in augmenting the variety list of worth-while horticultural forms led to his appointment in 1909 as superintendent of the United States Department of Agriculture Introduction Gardens at Chico, California. The ill health of his wife cut short his sojourn in California and a year later found him with headquarters at Washington, D. C., devoting himself to drug plants, chestnuts, and a wide range of breeding activities, largely a continuation of his former work at Little Silver, New Jersey. The net result of the move to California was a great loss to his breeding work. Some of his material was left at Little Silver, much of that transferred to Chico died in the uncongenial climate, and other promising plants were lost in transcontinental shipments to and from California.

In 1916 he became identified with the Office of Horticultural and Pomological Investigations of the United States Department of Agriculture, where he was permitted to devote himself to plant breeding. Up to the time of his death six years later, January 26, 1922, he devoted himself to his beloved rose breeding, without losing his interest in chestnuts, chinquapins and drug plants.

His was a most lovable personality. Those who came in contact with him day after day appreciated best his sterling qualities. He was kindly and considerate and nothing was too much trouble, and yet he had an intolerance

of hypocrisy and cant that was almost violent. He was steadfast of purpose, and there is nothing that shows this better than his lifelong work in plant breeding in spite of lack of adequate financial support. His likes and dislikes were strong. Above all, he was modest and retiring in the extreme. He not only avoided, but shunned publicity. He kept away from meetings, even those of the American Rose Society, from the fear of the publicity that his friends could not refrain from giving him.

He regretted in his later years that he had given up during his editorial career the little public speaking that he had previously done and had gotten so out of practice that, with his disposition, he could not again take it up.

He was an amateur musician with a thorough knowledge of orchestral and band instruments, harmony, theory, and orchestration, but during the last few years none but intimate frequenters of his home had the privilege of hearing him, although until within the last two or three years he often played the violin.

His first contribution of importance to garden lovers was gladioli hybrids from the use of *Gladiolus primulinus*. Before his crosses of this species were introduced few gardeners in America grew this flower, but afterward it soon became popular.

His most widely known contribution, however, has been climbing roses. The American Pillar and Dr. W. Van Fleet are probably the most popular roses in America to-day, while American Pillar is regarded as one of the best climbing roses in England. Some other popular climbers of his are May Queen, Ruby Queen, Philadelphia Rambler, Silver Moon, Alida Lovett, Bessie Lovett, Aunt Harriet, while Mary Wallace and Heart of Gold are two recent introductions that are being well received. Glenndale, a climber even more recently introduced, received a special prize at the Bagatelle Rose Test Garden in 1928. He has also introduced excellent bush roses,

among them that gem, Beauty of Rosemawr; and since his death, another, Sarah Van Fleet, has been distributed.

His work with chestnuts has pointed the way to the possibility of reestablishing the chestnut forests in this country by developing blight resistant forms. His raspberry, named Van Fleet, is many times as productive as any yet tested by the United States Department of Agriculture, and although it is too soft for commercial shipment it is of great value for home use in the southeastern portion of the United States. His work with the strawberry was primarily to secure a better flavor. He worked with vegetables as well as with fruits and ornamentals.

Though best known for his work with gladiolus, roses, and chestnuts, he originated valuable new plants in widely separated groups. He regarded his azaleas and some hybrid rugosa roses sold before he entered the Government service, but not introduced, and his colored freesias of nearly equal importance to his gladiolus and other roses. It was difficult to ask him of any plant about which he could not tell of his breeding experiences. The following list of hybrid material which he took with him to Chico, California, will give some idea of the scope of his work at that time: apple, pear, plum, grape, gooseberry, raspberry, strawberry, chestnut, walnut, azalea, barberry, blazing star, calla, camassia, cape cowslip, columbine, deutzia, freesia, gladiolus, hippeastrum, iris, lily, narcissus, and syringa. His work of later years covered even a greater range, while at the same time working more intensively on the rose. As the years pass and more of his originations become generally known his work is being held in higher and higher esteem.

Besides being a notable plant breeder, a successful physician, a skilled taxidermist, a well known ornithologist, an accomplished musician, and a widely known writer, he was an authority on drug plants, an able photographer, and a skilled horti-

culturist. Many consulted him in regard to their horticultural problems. Although he did not like plant propagation, he exercised ingenuity in it, probably because for many years he had been obliged to devise means of propagating his desirable hybrids which often behaved quite differently from their parents. Though he was interested only in practical plant breeding he was a thorough student and a keen observer. His most notable contribution to horticulture was probably the ideal he set for new roses and the progress he made toward securing it. This ideal for climbing roses was a plant with large flowers, healthy foliage, vigorous growth, and a long season of bloom, while his ideal for a bush rose was one with foliage that would compare in healthfulness, vigor, and disease resistance with the best of the rose species, that would be hardy under ordinary garden culture, and that would be a continuous bloomer. His experience taught him what would be likely to give the desired results, but often he could not come directly to the ends sought. For example, when he wanted to combine the characters of some newly found species with the Hybrid Tea roses he would often find the two could not be crossed directly with one another. He would then seek some other roses that would combine with the new species without changing the characters he wished to preserve, after which he would grow the resulting hybrids and cross them with the Hybrid Tea. Sometimes he would need to make another cross before he could get the seedlings for which he was striving. When it is realized that each cross of this kind would take from three to five years before he could take the next step, an idea is gained of the patience required. Sometimes the results of these crosses would be infertile, producing neither perfect pistils nor viable pollen, as in the case of a handsome scarlet rugosa growing in the National Rose Test Garden, which he was unable to use for further breeding on this account.

He attained a new standard of perfection in climbing roses and put a stamina and vigor into them which had previously not been attained. He was keenly alive to the importance of vegetative vigor and the part which healthy foliage contributes to such an end. For his climbers he used many hybrids of *Rosa wichuraiana*, often with other species on which he again crossed hybrid Teas. From such breeding he secured many large-flowered, large, healthy foliated varieties.

Possibly the most vexatious disappointments were those due to the failure of purchasers of his seedlings to introduce them. He sold the seedling rose he called Daybreak. As year after year went by without its being put upon the market he inquired the reason and finally learned that the stock had all been lost. From the original plant he was able to supply additional material for propagation so that finally the variety was introduced, but bearing the name Dr. W. Van Fleet instead of Daybreak. There are other cases where the varieties have never been offered to the public.

Dr. Van Fleet was critical of his productions and refrained from introducing seedlings if they did not measure up to his ideals in every particular. For this reason many of his valuable productions were withheld from distribution until other breeders offered plants that were in some degree similar to his and so made his valueless. He was slow in the destruction of his seedlings, giving each more than enough time to show its desirable characteristics either as a plant for introduction or as a possible parent. This at times greatly crowded his plantations.

The great plant breeders of the United States have been few in number. Improvement of our plant crops has come for the most part through the introduction of new material from other countries and through minor contributions by a large number of individuals—individuals many of whom might have become notable

plant breeders but were forced to other lines of work in order to make a living. The small number of great plant breeders, however, have made worthy contributions to our plant industries. Dr. Walter Van Fleet undoubtedly belongs to this latter group.

His observation of and intimate contact with plants for nearly forty years, coupled with reading that kept him in touch with the latest results in genetics and plant handling, easily placed him at the head of the list of able men of the country devoting their efforts to the improvement of horticultural plants through the technique of breeding.

In 1918 he was awarded the George Robert White Medal of Honor for eminent services in Horticulture by the Massachusetts Horticultural Society, the greatest token and honor that can come to an American horticulturist. He was also awarded three medals for the rose Mary Wallace, a gold medal by the American Rose Society, a gold medal by the City of Portland, Oregon, and a silver medal by the Portland (Oregon) Rose Society. These were all awarded in 1921.

The following incomplete list of his plant introductions and publications suggests the scope and extent of his work:

PLANT INTRODUCTIONS

NOTE.—Letters before the dates have the following significance:

- A. Year the variety was produced.
- B. Year the variety was given to the introducer.
- C. Year the variety became available to the general public.

In some cases it has been impossible to give the first two dates with certainty, but where they are given the best authority has been followed.

ROSES

Abbreviations have been used to designate the class to which the rose belongs:

H. W.	Hybrid wichuraiana	H. M.	Hybrid multiflora
H. R.	Hybrid rugosa	H. P.	Hybrid perpetual
H. T.	Hybrid tea	Bour.	Bourbon
H. T., Poly. Baby rambler with hybrid tea characteristics.			

Variety	Class	Parentage	Date	Introducer
May Queen	H.W.	<i>Rosa wichuraiana</i> x Mrs. de Graw	A. 1895 B. 1898 C. 1898	Conard & Jones Co.
Ruby Queen	H.W.	Queen's Scarlet x <i>Rosa wichuraiana</i>	A. 1895 B. C. 1898	C. & J. Co.
Clara Barton	H.T. Poly.	Clothilde Soupert x American Beauty	A. 1895 B. 1898 C. 1899	C. & J. Co.
Alba rubrifolia	H.W.	<i>Rosa wichuraiana</i> x Coquette de Lyon	A. 1895 B. 1898 C. 1900	C. & J. Co.
Magnafrano	H.T.	Magna Charta x Safrano	C. 1900 B.	C. & J. Co.
Pearl Queen	H.W.	<i>Rosa wichuraiana</i> x Mrs. de Graw	A. 1895 B. 1898 C. 1901	C. & J. Co.
New Century	H.R.	<i>Rosa rugosa alba</i> x Clothilde Soupert	B. 1900 C. 1901	C. & J. Co.
Philadelphia	H.M.	Crimson Rambler x Victor Hugo	C. 1902	C. & J. Co.
Beauty of Rosemawr	Bour.		B. 1903 C. 1903	C. & J. Co.

Northern Light	H.W.		B. 1898	C. & J. Co.
Sir Thomas Lipton	H.R.	<i>Rosa rugosa alba</i> x Clothilde Soupert	C. 1904	
Charles Wagner	H.P.	Jean Liabaud x Victor Hugo	B. 1900	C. & J. Co.
American Pillar	H.W.	(<i>Rosa wichuraiana</i> x <i>R. setigera</i>) x a red hybrid perpetual	C. 1904	C. & J. Co.
Birdie Blye	H.M.	Helene x Bon Silene	C. 1906	
			A. 1900	C. & J. Co.
			B. 1904	
Rugosa magnifica	H.R.	<i>Rosa rugosa</i> x Ard's Rover	C. 1906	
Garnet Climber	H.W.	<i>Rosa wichuraiana</i> x Lucullus	B. 1905	C. & J. Co.
Dr. W. Van Fleet	H.W.	(<i>Rosa wichuraiana</i> x Safrano) x Souv. de Pres. Carnot	C. 1907	
			B. 1907	Peter Henderson & Co.
			C. 1909	
Silver Moon	H.W.	(<i>Rosa wichuraiana</i> x <i>Devoniensis</i>) x <i>Rosa laevigata</i>	A. 1899	Peter Henderson & Co.
Mary Lovett	H.W.	<i>Rosa wichuraiana</i> x Kaiserin Augusta Victoria	B. 1903	
			C. 1910	
Bess Lovett	H.W.		B. 1908	Peter Henderson & Co.
			C. 1910	
			A. 1902	Peter Henderson & Co.
			B. 1909	
			C. 1915	
Alida Lovett	H.W.	<i>Rosa wichuraiana</i> x Souv. de Pres. Carnot	A. 1902	J. T. Lovett
			B. 1910	
			C. 1916	
Aunt Harriet	H.W.	Appoline x <i>Rosa wichuraiana</i>	A. 1902	J. T. Lovett
Mary Wallace	H.W.	<i>Rosa wichuraiana</i> x hybrid tea	B. 1906	
			C. 1917	
Heart of Gold	H.W.	(<i>Rosa wichuraiana</i> x <i>R. setigera</i>) x <i>Rosa movesi</i>	C. 1918	Farm Journal
Sarah Van Fleet	H.R.	<i>Rosa rugosa</i> x a hybrid tea, possibly My Maryland	B. 1921	U. S. Dept. of Agriculture
Dr. E. M. Mills	H.R.		C. 1924	
			B. 1923	U. S. Dept. of Agriculture
			C. 1926	
Breeze Hill	H.W.	<i>Rosa wichuraiana</i> x Beaute de Lyon	B. 1925	U. S. Dept. of Agriculture
Glenn Dale	H.W.	<i>Rosa wichuraiana</i> x Isabella Sprunt	C. 1927	
			B. 1925	U. S. Dept. of Agriculture
			C. 1927	
Ruskin	H.R.	<i>Rosa rugosa</i> , Souv. de Pierre Leperdrieux x Victor Hugo	B. 1926	U. S. Dept. of Agriculture
			C. 1928	
			B. 1926	U. S. Dept. of Agriculture
			C. 1928	
			B. 1927	U. S. Dept. of Agriculture

OTHER ORNAMENTALS

GLADIOLUS

Variety	Parentage	Date	Introducer
Lord Fairfax		B. 1895	Peter Henderson & Co.
Princeps	(<i>G. cruentus</i> x <i>G. Childsi</i>) x (<i>G. gandavensis</i> x <i>G. saundersi</i>)	C. 1900	J. C. Vaughn
Autumn Giant	Hybrid of <i>G. quartinianus</i>	C. 1906	J. M. Thorburn
Charles L. Hutchinson		C. 1911	J. C. Vaughn
Mastodon		B. 1908	J. C. Vaughn
		C. 1911	
Sunbeam	Hybrid of <i>G. primulinus</i> x Sulphur King	C. 1914	J. C. Vaughn

Doctor Van Fleet introduced *Gladiolus primulinus* into the United States. In 1903 or 1904 he received from Prof. Max Leitchlein, Baden Baden, Germany, one half of the original stock of bulbs found by one of Prof. Leitchlein's collectors growing at the foot of Victoria Falls, South Africa. Sunbeam was the first hybrid of this species to receive a name and be disseminated. The seedling

was given to Mr. T. M. White, Little Silver, N. J., when Dr. Van Fleet went to California and was later sold by Mr. White to J. C. Vaughn of Chicago, Ill.

CANNA

Flamingo	(Star of 91 x an unnamed seedling) x Neutonii	C. 1894	Dingee & Conard
Crimson Bedder	Hybrid of <i>C. iridiflora</i>	C. 1902	J. T. Lovett
Golden Bedder		C. 1902	J. T. Lovett

GERANIUM

Flashlight	<i>Pelargonium multibracteatum</i> x Gettysburg	B. 1896 C. 1899	Peter Henderson & Co.
------------	---	--------------------	-----------------------

LONICERA

L. hendersoni	L. fuchsoides x L. sullivanti	B. 1896 C. 1903	Peter Henderson & Co.
---------------	-------------------------------	--------------------	-----------------------

FRUITS

GOOSEBERRY

Variety	Parentage	Date	Introducer
Van Fleet	(Houghton x Keepsake) x Industry	B. 1909 C. 1918	J. T. Lovett
Glennedale	((<i>Ribes gracile</i> x Red Warrington) x Triumph) x Keepsake	Not yet in trade	U. S. Dept. of Agriculture

STRAWBERRY

Early Jersey Giant	(Van Fleet Seedling #10)	A. 1907-09 B. 1910 C. 1912	J. T. Lovett
Late Jersey Giant	(Van Fleet Seedling #14)	A. 1907-09 B. 1910 C. 1912	J. T. Lovett
Edmund Wilson	(Van Fleet Seedling #13)	A. 1907-09 B. 1910 C. 1913	J. T. Lovett
John H. Cook	(Van Fleet Seedling #7)	A. 1907-09 B. 1910 C. 1914	J. T. Lovett

These strawberries were selected seedlings secured in 1907-1909 from crossing high quality European varieties, such as Jucunda, Alfonso, Xij and Pres. de la Devansaye, with the very best native kinds, including Belt, President, Nick Ohmer and Chesapeake.

PEAR

Young trees of crosses of Golden Russet with Lawrence, Bartlett, Sheldon and Le Conte were growing at Little Silver, N. J., in 1902. In 1906 Dr. Van Fleet selected a cross of Golden Russet and Lawrence and recrossed it with several better varieties. In 1909 when he entered the government service he took with him third generation crosses, using various pollen parents at each crossing. In 1916 certain of these crosses were crossed and a fourth generation has begun fruiting at Bell Horticultural Field Station in 1928. Some of the third generation crosses have been considered promising and have been propagated to give them a wider trial.

VEGETABLES

PEPPER

Variety	Parentage	Date	Introducer
Uright Sweet Salad	Chinese Giant x Mild Sweet Harold	B. 1903 C. 1905	J. M. Thorburn

SUGAR CORN

Sheffield	Cory x Extra Early Adams	B. 1897	W. Atlee Burpee
-----------	--------------------------	---------	-----------------

TOMATO

Quarter Century		A. 1895	W. Atlee Burpee
		B. 1897	pee
		C. 1900	
Combination	(NOTE.—This was offered as a premium without a name in 1898 by W. Atlee Burpee.)	A. 1896	W. Atlee Burpee
		B. 1897	pee
		C. 1899	

BIBLIOGRAPHY.

- 1876 Rough-winged Swallow. Nuttall Bulletin no. 1, 1876, pp. 9-11.
- 1886 A Pirate of the Air (Hawk). Frank Leslie's Popular Magazine, Vol. 22, no. 6, Dec., 1886, p. 668.
- 1887 An Imp of Darkness. Frank Leslie's Popular Magazine, Vol. 23, no. 4, April, 1887, p. 487.
- 1888 The Warblers. Frank Leslie's Popular Magazine, Vol. 25, no. 5, May, 1888, p. 567. A Well-dressed Tramp. (Waxwing.) Frank Leslie's Popular Magazine, Vol. 26, no. 3, Sept. 1888, p. 487.
- Bird Portraits. The Forest and Stream Publishing Co., New York, N. Y., 147 pp., 14 pls., illustrated.
- 1899-1909 Ruralisms and other articles as associate editor. Rural New Yorker, New York, N. Y.
- 1902 Hybridizing Gladiolus Species. Proceedings International Conference on Plant Breeding, Hort. Soc., N. Y., Vol. 1, pp. 143-149.
- 1907 Vegetable Breeding. Proceedings Congress of Horticulture, Jamestown (Va.) Exposition, September 23, pp. 28-31.
- Breeding Wild Roses. Annual Report American Breeders Association, Vol. IV, 1907, pp. 240.
- 1908 Report of the Committee on Breeding Roses. Annual Report American Breeders Association, Vol. V, 1908, p. 14.
- 1911 The Gladiolus. By Matthew Crawford with appendix by W. Van Fleet. Published by Vaughn's Seed Store, Chicago and New York, p. 20.
- 1913 The Cultivation of American Ginseng. Farmers' Bulletin no. 551, U. S. Dept. of Agriculture.
- Sunlight for Roses. Garden Magazine, New York, N. Y., March, 1913, p. 116.
- 1914 Chestnut Breeding Experience. Journal of Heredity, Vol. V, no. 1, pp. 19-23.
- Goldenseal under Cultivation. Farmers' Bulletin no. 613, U. S. Dept. of Agriculture.
- 1915 The Cultivation of Peppermint or Spearmint. Farmers' Bulletin no. 694, U. S. Dept. of Agriculture.
- 1916 Possibilities in the Production of Garden Roses. American Rose Annual, I (1916), pp. 27-36.
- Perfumery Gardening. Revision of an article by E. S. Steele, Standard Cyclopaedia of Horticulture, Vol. V, pp. 2547-2551.
- 1917 On the 1916 Rose Firing Line. Changed from Rose Breeding Notes for 1916. American Rose Annual, II (1917), pp. 41-43.
- Possibilities of American Garden Roses. Journal of International Garden Club, I, (1917), pp. 485-496.
- 1918 Notes from the Rose Firing Line. Changed from Rose Breeding Notes for 1917. American Rose Annual, III (1918), pp. 43-45.
- Stocks for Rose Propagation. American Rose Annual, III (1918), pp. 56-62.
- 1919 Rose Breeding Notes for 1918. American Rose Annual, IV (1919), pp. 29-34.
- Fragrant Roses. American Rose Annual, IV (1919), pp. 14-20.
- New Pillar Rose. Journal of Heredity, Vol. X (March, 1919), pp. 136-138.
- New Everbearing Strawberries. Journal of Heredity, Vol. X (Jan., 1919), pp. 14-16.
- Progress of Breeding Freesias. Journal of International Garden Club, Vol. III (June, 1919), pp. 232-239.
- 1920 Rose Breeding Notes for 1919. American Rose Annual, V (1920), pp. 23-30.
- Raising New Roses from Seed. Garden Magazine, New York, N. Y., Aug., 1920, p. 370.
- 1921 Rose Breeding in 1920 at Bell Experiment Plot. American Rose Annual, VI (1921), pp. 25-31.



Dorsett & Dorsett

Raw Materials

U. S. Department of Agriculture

The Manufacture of Incense

NOTES FROM AN EXPLORER'S DIARY

By P. H. AND J. H. DORSETT

We were winding our way down one of the narrow and picturesque valleys of the Western Hills, following a stream known as Clear Water River, a stream worthy of its name, as clear as crystal and flooding over a bed almost continuously green with moss as it wound its way around the base of mountains which through the ages have been denuded of all vegetation save wild jujubes and miserable brush.

On nearing the village of Tung ta ch'ang, which is about fifty miles west of Peking, we noticed a crude dam of cobble stones across the river which we supposed at the time was for the purpose of diverting the water for irrigation purposes. As we proceeded down the stream a little further; however, we found that the water was

furnishing power for what proved to be an incense factory. This was one of the few instances in rural districts where we saw natural resources harnessed to furnish power.

The manufacture of the incense is very simple and very interesting in its detail. Plant materials alone are used, the chief constituents being elm and cedar powder, ten parts of the first and fifteen of the second. The powder is made by grinding the whole plant, limbs, branches and roots between huge grinding stones in a fashion very similar to that once used in making flour. Various mixed woods may be substituted, but the best grades of incense are made from "mountain elm" and "redwood cedar." In the mixture the elm is used only because



Dorsett & Dorsett

Strings of Wet Incense

U. S. Department of Agriculture

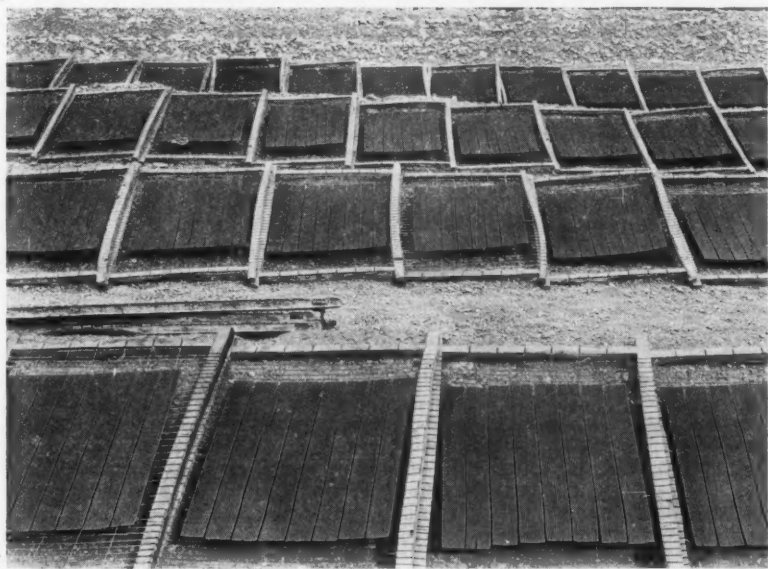
it binds the mass together and gives bulk. The cedar gives out the pleasant odor in burning. For other scents, powdered *Rosa banksia*, cassia, sandalwood, orange peel and lilac are sometimes added to the formula already given.

After the elm and cedar have been ground to powder, the dust must be sifted to remove any unground portions or foreign matter. As the powder is bone dry and the dust very fine, it floats easily in the air and does not settle for some time. To guard against waste and to make it possible to work in the sifting room with some degree of comfort, the sieve is inclosed in a canvas frame and is operated from the outside in an ingenious fashion. A horizontal wooden rod connected with the sieve projects through the canvas frame and is connected with a vertical rod by means of a toggle-joint. The vertical in turn is attached to a pivoted wooden rocker on which the operator places his feet, thereby keeping the

sieve in motion by shifting his weight from one foot to the other.

The dry dusts are mixed in the desired proportions and enough water is added to work the mass into a putty-like consistency. This mixture is then put into a hollow wooden cylinder about three inches in diameter, closed at the base except for a small hole from $\frac{3}{8}$ to $\frac{1}{2}$ inch in diameter. When the tube is filled a wooden plunger is inserted in the upper end and pressed downward, causing the dough to emerge from the small hole at the base in a continuous spaghetti-like string which coils about in amusing fashion in a basket held in readiness by a worker.

The next worker takes the spiral of wet incense from the basket and pulls it straight over an inclined canvas frame, cutting it off with his thumb nail at the desired length and laying the strands side by side until there are one hundred twenty-eight. With a knife he lifts any that may have



Dorsett & Dorsett

The Drying Frames

U. S. Department of Agriculture



Dorsett & Dorsett

Storage before Packing

U. S. Department of Agriculture

stuck to the canvas and then with a blunt knife he separates the mass into eight blocks of sixteen strands each. A wire tray is now laid over the mass and by quickly inverting both frames the incense is left to dry on the wire frame which is carried to the drying yard, where it remains in the open from one to three days. After this it is stored in sheds until ready for packing.

In the packing room the incense is carefully wrapped in paper, usually the familiar red and yellow paper of China. The number of pieces in each bundle depends upon the kind of incense and the purpose for which it is to be used. For example, the Hsien hsiang, or thread incense for daily use, is put up in bundles of one hundred and sixty pieces, while the Fo ke hsiang, or Buddha incense, is put up in bundles of nineteen pieces.

The finished bundles are carried by coolies to the market in Peking, which still consumes a large supply, for al-

though the manufacture is not so common as once, the factory that we visited makes two thousand bundles a day for eight to ten months each year, showing that even in the face of modern developments the burning of incense still continues.

In spite of the general distaste for any hue that savors of magenta the early flowering *Rhododendron mucronulatum* should find a place in the early shrubbery with a tall plant of *Magnolia stellata* or *Prunus tomentosa* for background and a sward of purple and white crocus under it. No squills or chionodoxas however, unless you really prefer a discord. And while we are on the subject of magenta, can any reader tell how, why or when magenta was first outlawed?

Try *Daphne mezereum* with this azalea. They flower together and this plant gives a deeper magenta with a touch of chocolate brown in it.

The Lilies

By H. CORREVEON

(From "Les plantes des montagnes et des rochers," Geneva, 1914; translated by Bernard H. Lane; published by permission of M. Correveon.)

NOTE.—As the English edition of M. Correveon's book, under the title "Plants of mountain and rock," announced for publication by the Macmillan Co. this spring, will not contain the chapter on lilies, it seems worth while to give here a translation of that chapter, slightly abridged, though, of course, it does not mention *Lilium regale* and other beautiful lilies introduced since 1914.

More than 20 years ago M. Henri Vilmorin and I were walking in the environs of St. Maurice in Valais. There, beside the tunnel and on the estate of Count Riant, were large and beautiful chestnut trees whose branches spread out lazily over the earth. Thick forests overlook the country, whose soil is a deep, rich humus. "See," said the great Paris seedsman to me, "there is an ideal nook for the culture of lilies. What would you say to the idea that we two should join in the attempt to introduce that culture into the country?"

In truth, the lilies seek shade and coolness—a certain degree of each. The gigantic Asiatic lilies, which the English grow in the humus of their woods, in the shade of the great oaks, and which reach 3 meters in height, prove it. To succeed in the acclimatization of these queens among bulbous plants it is necessary to have (1) a deep, porous soil rich in humus, and (2) half shade. And there you have the secret of so many failures and disappointments in the culture of these superb plants.

It has been almost 40 years that I pursued the chimera of success in acclimatizing all the lilies. But here at Floraire, where we lack shade, the thing was difficult. A border was established with this end in view north of the high hedge of arborvitae; but the field mice of the neighborhood attacked all that we had planted there,

and we could not succeed, even with poison, in getting rid of them. It is with the umbrosum [see this magazine for July, 1928, page 87] that we have had the best result so far, but not every one is able to set up an umbrosum, and it is too much to require one for the lilies, however great may be their beauty and delicate their attire.

Still we have had formerly at Plainpalais, in our old garden, a veritable success with lilies. A Ghent friend, Judge d'Hoop, the greatest lily culturist of the continent, an amateur passionately devoted to this royal genus, had converted the author of these lines to his method of culture. In the brochure, now very rare, which he has published on this subject (Table alphabétique du genre *Lys*, Ghent, 1884), this devoted and conscientious man has given a complete review of all the species and varieties of lilies known in 1884 and full information concerning their nomenclature and the origin of each plant. But he says not one word of his system of culture. When he came to see me at Plainpalais he convinced me that I could acclimatize the lilies. "See," said he, on perceiving a border at the north of a high party wall, "there is the situation where you will succeed." Here are the counsels which he was pleased to give me. As I have derived benefit from following the advice of this expert, who had at that time the most marvelous collection of lilies known outside of England, of a health and vigor that left nothing to be desired, I think it well to give here, for the use of amateurs, the famous secrets of my Belgian friend.

"Most of the lilies require a situation in half shade, but not too close

to large trees, whose roots exhaust and dry out the soil and whose branches trickle the rain down on the delicate flowers and cause blemishes. The soil should be cool but not too moist—that is why we plant them by preference in a border along a wall that faces the north or northwest, placing the bulbs at a depth of 10 to 25 centimeters, according to their size. The soil should be first broken up to a depth of 60 centimeters at least, and the bottom should be filled with a bed of slag, bricks, etc., to establish good drainage. For soil we make a mixture of one-third loam, one-third heath soil or fine leaf mold, and one-third spent hotbed soil. The lilies of the *candidum* section require heavier soil (good wheat soil in larger proportion), whereas, the species of the group of *superbum*, *canadense*, etc., whose bulbs have small and fragile scales, prefer pure heath soil kept in a constant state of coolness by a covering of moss or manure. The group of *auratum*, that of *martagon*, and all those whose bulbs are large and robust, do very well in the plantations of rhododendrons and azaleas where they are lightly shaded. When the bulbs are planted it is necessary to take pains, especially for the delicate species, to surround them with earth mixed with sand or fine cinders and never to forget that the great enemy of lilies is rotteness at the base of the bulb. Dampness, especially in the period of rest (September to November), together with the presence of earth worms (which is a consequence of the dampness), rapidly destroys lily bulbs. The pest of worms is overcome by sprinkling with lye water or with water of boiled chestnuts. At the period of growth these plants are not injured by manure water (avoid touching the leaves)."

It is this system, put into practice at Plainpalais, that has succeeded so marvelously with me. It goes without saying that I am speaking here only of the delicate species and not of the lilies of ordinary open ground, which grow perfectly in any good arable and

healthy soil. The very practical volume on lilies by Dr. Wallace (Notes on lilies), the superb work of Mr. Henry Elwes (Monograph of the lilies), the little volume of Miss Jekyll (Lilies for English gardens), the beautiful plates of Miss Ellen Willmott in her album on the Warley garden, the innumerable articles in the English horticultural journals, the superb exhibitions of lilies made each year and many times a year by the house of Wallace, of Colchester, which has for a long time been devoted to that specialty, have made this genus of plants popular in England. In French we have nothing except the classic work of Dr. Buchartré, "Les Lys et leur distribution géographique," and the poet of the "flowers of the Virgin" has not yet appeared. Nevertheless, what a glory in these fragrant bouquets; what life, what joy in these flowers so delightfully colored and so delicately perfumed! They are infinitely superior—may M. Lambeau pardon me—to all the splendor of the exotic orchids.

We speak of the *martagons* because, indeed, they surpass the others in the mountain country where we are now situated. It was in 1866, I think, that I found my first *martagon* lily. It bloomed profusely at the foot of the great rocks called "Aiguilles de Baulnes" in the Vaudois Jura. That flower with the gay tint of rosy wine, six protruding stamens, petals recurved in a turban, and a rather disagreeable odor, surprised me by the strangeness of its form and color. I made great haste, as soon as I returned, to inquire the name of my professor of botany. "A lily"—but the worthy man surely joked, for in my childish imagination the name of lily could be applied only to a flower immaculate and pure, and this one was the opposite of the lily of my conception.

Afterward, where I found it, the *martagon* had flowers of a beautiful rose, of a dull violet, and at times of a lovely white. In the granitic soil of Valais its tint is almost a clear rose. We have in the Linnaea garden three

stalks whose flowers are pure white, and we have never planted them there; they are volunteers. (The *martagon* is abundant in the meadows of the garden.)

A most beautiful display of *martagons* can be seen in the mountain meadows of southern Tyrol, between Lake Garda and Carinthia. I have seen there, one June morning—it thrills me again—thousands of *martagon* lilies with vermilion-red flowers (*Lilium carnolicum*) stretching up above the grass, perfumed with a thousand flowers that I had never gathered. There was the beautiful rosy flax (*Linum viscosum*), which I had already collected among the gromwells (*Lithospermum graminifolium*) of Monte Summano; there were the marvelous orchids, *Serapias* with brown and gold flowers, tufts of *Epimedium alpinum*, *Daphne striata*, *Scorzonera rosea*, *Paederota*, *Campanula carnica*, *Phyteuma humile*, *Dentaria bulbifera*, *Anemone trifolia*, and what not more! It was a synthesis of beauty—a chant which lifted itself from the adorned and beautiful earth to its Creator and Father, and the friend who took me there will always deserve my remembrance.

What shall I say now of the little white lily of our Alps (not a *martagon*, this one)—of that simple St. Bruno's lily (*Paradisica*), which perfumes the warm valleys in June and July, and grows in places in such great abundance after the first of July that the valley appears as white as a snow field.

There are, then, among the *martagons*, many tints, and this family so richly clothed is dispersed almost everywhere in the Northern Hemisphere. North America gives us *Lilium canadense*, *grayi*, *nitidum*, *kelloggii*, *pardalinum*, *superbum*, *columbianum*, and *humboldtii*; Asia and Europe *L. martagon*, *jankae*, *heldreichii*, *ochratum*, *taliense*, *wallacei*, *duchartrei*, *papilliferum*, *fargesii*, *sutchunense*, *pyrenaicum*, *pomponium*, *chalcedonicum*, *graecum*, *carniolicum*, *monadelphum*, *hansonii*, *avenaceum*, *polyphyllum*, *leichlinii*, *testaceum*, *callosum*, and *tenuifolium*. All

these vary in form and color, in perfume and elegance. In general they are vigorous plants, which are easily preserved in a well-tended garden.

One of the most beautiful tableaux which it has been given to me to see is the group of *L. testaceum* (Nankeen lily) in the garden of Miss Willmott at Warley. It rises, broad and noble, from the bosom of the green turf and makes a marvelous effect. The millions of large reddish-yellow flowers, with clearly defined divisions, present a thrilling aspect.

But the palm for beauty falls without doubt to the group of true lilies (*Eulirion*), of which the prototype is the Madonna lily. It is the ancient emblem of innocence, purity, and candor. It is not, I regret to say, the flower that glows on the arms of France, for that fleur-de-lys was a simple yellow iris, the *Iris pseudacorus*, or perhaps even the image of a lance. Our white lily was grown by the chateaux of the Middle Ages, and I love to see in thought their fair persons giving it gracious care. It was sung by the Greeks and Romans, who had introduced it into their gardens; Vergil wished that lilies should be planted with generous hand on the tomb of Daphnis. "It is the king of flowers, if the rose is the queen," a poet has said; and we would gladly add, "Nothing is so beautiful, nothing is so pure, nothing is so grand."

The white lily (*L. candidum*) is a native of the sunny countries of Palestine and Syria; it has been naturalized in certain Italian and Spanish stations, and I have found it in a subsontaneous growth in the immediate environs of Nice, on the Villefranche side. Plant a group of white lilies against the somber background of a yew or a hedge of arborvitae and you will have a picture worthy of Boecklin. At Floraire we have planted a few everywhere, and I must say that, contrary to all our expectations, it is in half shade that we have had best success, although I had always said and written that this lily was a plant

for full sunshine. Miss Willmott has made glorious masses of it in her garden by the lake of Bourgeot and also in that of Warley in England. In our French Swiss villages the ancient practice has established in each garden—more especially in the canton of Vaud—tufts of the white lily, and it was one of the pleasures of my childhood to inhale the perfume.

The group of *Eulirion*—that is, of those species that belong to our beautiful *candidum* type—is very considerable. We cite as the species worthy of recommendation *brownii*, *bolanderi*, *candidum*, *japonicum*, *krameri*, *longiflorum*, *lowii*, *neilgherrense*, *maritimum*, *nepalense*, *parryi*, *philippinense*, *primulinum*, *sulphureum*, *wallichianum*, and *washingtonianum*.

Japan has given us the marvelous plant called *Lilium auratum*; it is the most strongly and sweetly perfumed of all the lilies. Lady Marcus Beresford, in the royal forest of Windsor, has established around her delightful cottage groups of *L. auratum*, whose proportions and dimensions surpass everything that can be seen elsewhere. I have counted more than 80 flowers on a single stalk, which—it is the truth—was more than 2½ meters high. The fragrance of that Eden penetrates through all the surrounding country.

To the group of *auratum* belong *delavayi*, *henryi*, *oxypetalum*, *tigrinum*, *speciosum*, and *yunnanense*, all Asiatic.

Another group includes lilies of the bulbiferous type; these are the easiest to grow with us. The best-known species of this group are *bulbiferum*, *catesbyi*, *concolor*, *croceum*, *dahuricum*, *elegans*, *medeoloides*, and *philadelphicum*. A small group comprises two marvelous Asiatic species with rose or lilac flowers—*L. hookeri* and *L. roseum*, of rather difficult culture with us. Finally we cite the colossi of the family—*L. cordifolium*, of Japan, and *L. giganteum*, of the Himalayas. I have seen at the homes of Sir Henry Yorke and Lady Beresford stalks of *L. giganteum* attaining almost 3½ meters in height! I would not say, however,

that these plants are true beauties—they are too colossal, to my notion.

I am strongly of the belief that our continental climate and the dry air of our plains are prejudicial to the good health of these beautiful lilies of Asia and especially to the Japanese lilies. In the mountains of Vaud, where there exist simple but delightful little gardens, I have seen collections of lilies that made me marvel. Between 1875 and 1885, in the valley of Joux (altitude 1,000 meters), one could see in a great many gardens, rising from the midst of the borders in August and September, superb tufts of lilies of a glowing red—from cardinal-red to the most striking vermilion. It was the lily of Chalcedonia—alas, very rare and very slender in our collections—which had become popular and had been distributed from one estate to another. At the present moment one can not find it: the plant has disappeared; no one knows the reason.

At Gryon sur Bex (altitude 1,100 meters), in the garden of our national poet, Juste Olivier, his son-in-law, M. E. Bertrand, cultivates exquisite things and among others has assembled a collection of lilies which flourish and survive the winters there. I give the list: *L. candidum*, *bulbiferum*, *canadense*, *carniolicum*, *chalcedonicum*, *colchicum*, *croceum*, *excelsum*, *graecum*, *harrisi*, *henryi*, *martagon album*, *pomponium*, *pyrenaicum*, *pyrenaicum rubrum*, *philadelphicum*, *longiflorum*, *speciosum album* and *rubrum*, *superbum*, *thunbergianum*, *thunbergianum alutaceum* and Prince of Orange, *tigrinum*, and *washingtonianum*.

The time has come for us to give a greater place to the culture of lilies. The Royal Horticultural Society of London conducted, on June 16, 1901, a famous fête in honor of these flowers. There was in the gardens of the society a grand exhibition of lilies, conferences were held, and a special committee was charged with investigating the subject. A masterly report which classifies the species according to their natural order has been published in the *Journal of*

the Royal Horticultural Society for December, 1901.

Though the lilies are essentially plants of the mountains, susceptible of successful growth, more especially in the climate of the heights or that of maritime countries, there are nevertheless a great many species which we have succeeded in acclimatizing without too much difficulty. The Madonna lily, in the first place, a southern plant, does better in the gardens having a continental climate than under a foggy sky, and it is more beautiful at low than at high altitudes. The same is true of two lilies which Japan has given us—*speciosum* and *tigrinum*. These two species and their varieties succeed perfectly with us, but always sheltered from full sun. Still, *L. tigrinum* makes a superb growth at an altitude of 800 to 1,000 meters in the mountains if one takes pains to give it a sunny place. *L. bulbiferum* and *L. croceum*, of the rocks of our southern Alps (the latter grows near Geneva, in the environs of Bonneville, on the wild rocks that face the west), are likewise of very easy culture and fall in the category of border plants. *L. umbellatum*, which is a form of *croceum*, has itself a number of varieties and is beginning to be distributed in our gardens.

Under trees, in shady or half shady places, or on slopes facing the north, one can grow perfectly *L. martagon* and its varieties and *L. pyrenaicum*. The red-flowered martagons (*pomponium* and *carniolicum*) demand a deep, well-drained soil and half shade but are injured by the nearness of trees or competition with roots of vigorous plants. *L. chalcedonicum* and its variety *graecum*, true marvels in their dress of vivid scarlet, require a well-lighted border but not full sun, a cool, deep soil, rather compact than too light, and always well drained. The little *L. tenuifolium* of the Altai Mountains is a treasure of grace, vivacious color, and elegance. It is a miniature *chalcedonicum* which is grown with relative ease. I have

seen it bloom each year with us, without any particular care.

The Caucasus lily *L. monadelphum* (*szovitsianum* or *colchicum*) is a species with large flowers, of very elegant form, pale reddish-yellow tint, and considerable height. It grows in the woods, on the edge of groups of trees, and among the masses of rhododendrons, and flowers in August and September. One places this also in borders.

The great white lily of Japan (*L. longiflorum*), which has been so easily imported for many years, is one of the most beautiful. It has numerous varieties (*australis*, *eximium*, *harrisii*, *takesima*, and *multiflorum*), which, with the type, form a very beautiful decoration for shady borders. Their great flowers of a very pure white, bent forward, present the aspect of giant Madonna lilies with the perfume of gardenias. For soil they need a mixture of one-third turf, or heath soil, one-third leaf mold, and one-third grain or field soil.

Lilium speciosum and *lancifolium*, of Japan, and their numerous varieties form by themselves a separate class. Their large flowers with erect petals, like the martagons, their picturesque, irregular bearing on rigid stems, appearing from August to October, make them very characteristic plants. The type is of a delicate rose spotted with purple, but there are varieties with pure white flowers. The Van Tubergen catalog lists 10 varieties, and that of the Wallace house 12. It is one of the easiest to grow with us and also one of the most widely distributed.

L. elegans or *thunbergianum* is another popular species which thrives in our continental climates. Originating in Japan, this beautiful species was introduced about 1835 and had given rise to a very great number of varieties, of which the best for our climate are *L. e. atrosanguineum*, *bicolor*, *brevifolium*, *citrinum*, *cruentum*, *flore pleno*, *fulgens*, *pardalinum*, Prince of Orange, *robustum*, *sanguineum*, *venustum*, and *wallacei*. (Dr. Wallace

indicates more than 30 varieties, all Japanese and apparently most of them very ancient.) These are low plants, not exceeding 30 centimeters, with flowers similar to *bulbiferum* and *croceum*, of a more or less pronounced red, in the form of erect cups, often joined in clusters, rather stiff than graceful, yet producing a grand effect. Nearly all of them bloom in July and are of easy culture in half shade and rather light soil; but it is necessary to plant the bulbs at a depth of 10 centimeters.

One word more on the subject of the king of lilies, *L. auratum*. It is the most splendid of this splendid genus, but it is also one of those which we have most difficulty in growing in central Europe. The English raise it with the greatest ease, and I have already mentioned the splendors which I have admired at the homes of Lady Beresford, Sir Henry Yorke, and others, and above all my late friend Wilson, of Weybridge, the most enthusiastic and most successful lily grower in the United Kingdom. (The Garden, vol. 8, page 99, tells of the *L. auratum* of Mr. Mac-Intosh at Weybridge, which measure 2 meters in height and carry on each tuft, coming from a single bulb, 110 to 140 large flowers!) In Japan this plant, to which the populace attribute a divine origin, grows in great abundance on the mountains, especially on the wooded slopes of the sacred mountain Fujiyama. This is a gigantic volcanic cone which rises to 3,780 meters and whose igneous rock is covered with a soil composed of leaf mold and porous and friable volcanic fragments (mica schist, lava, etc.). This soil contains no lime, and the climate of that country, warmer and more humid than ours, is nearer that of southern England. We do not forget also that the rainy season in Japan is continuous for two to three months, at the precise time when the stems of the lilies emerge from the

ground and develop. Besides, the soil chosen by nature for the gold-banded lily is always covered with rampant verdure, generally with a little dwarf bamboo, which over there replaces our turf. It withstands 8 to 10 degrees of cold.

This so beautiful plant can be cultivated here when one takes care to observe certain conditions which Wallace gives. Like all the other Japanese lilies, *L. auratum* has two kinds of roots—those beneath the bulb and another set in horizontal position, above the bulb, at the base of the stem after that appears. It is this crown of upper roots which should be nursed most especially, and that is why it is necessary to plant the bulbs deep (15 to 20 centimeters). It is important that these stem roots do not come above the soil; they should be well underground, and it is necessary also that from May to July, corresponding to the rainy season in Japan and the epoch of development of the plant, the ground should be watered regularly and not intermittently. It is important also to plant the bulbs as early in the fall as possible, for the lily bulb, contrary to the general opinion, has no period of rest. It is well to plant at their feet carpeting plants which have shallow roots (*Herniaria*, *Sedum*, *Acaena*, *Dianthus deltoides*, *Hypericum reptans*, creeping phlox, etc.). In that event it does no harm to let the flowers bathe themselves in the sun's rays.

In humid localities one can imitate the procedure of the Japanese, which consists in planting the bulbs of delicate lilies on the side, to avoid rot among the scales. Unfortunately it is very rarely that the strongest bulbs persist many years at Geneva. Even in the superb collection of M. Marc Micheli, at the château of Jussy, I have never seen a gold-banded Lily that could live more than two or three years, though in England the plant is absolutely hardy and perennial.

Types of Peonia Albiflora

BY MRS. EDWARD HARDING

Recently The American Peony Society in accordance with suggestions made by Mr. A. H. Fewkes has revised the recognized "types" of the Chinese herbaceous peony. This revision is a great improvement, not only as to accuracy of description, but because it condenses and makes simpler the details for the gardener to remember.

In this connection Mr. Fewkes, our conservative and able professional grower, has written an informative article with which I heartily agree in almost every regard.

Mr. Fewkes suggests that the types should be five in number instead of seven as heretofore. The "crown" type of the older classification is either a semi-double or a double and accordingly may be placed under one of these types. The old "bomb" type is really a double. The name was applied to a compact globular bloom of incurving petals, with clearly differentiated guard petals. It is not the shape of the petals, but the transformation into petals of stamens and carpels which determines whether or not a flower is double.

This leaves us five types:

1. *Single*. "Possessing five or more true petals arranged around a center

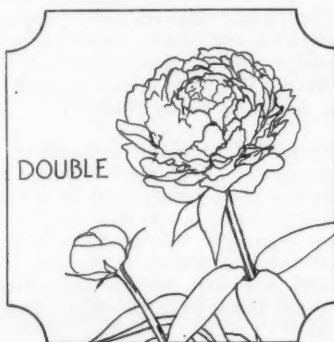
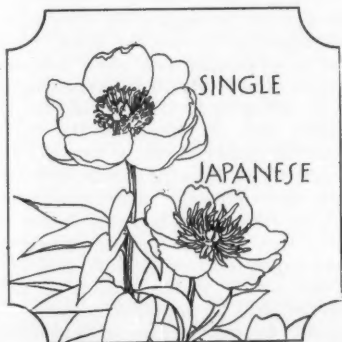
made up of stamens with pollen-bearing anthers."

2. *Japanese*. In reality a double form, but having the general appearance of a single flower. It possesses five or more outside or guard petals. The center is composed of stamens with imperfect anthers, usually devoid of pollen.



3. *Anemone*. Resembles the Japanese type, but varies by the complete absence of anthers. The filaments of the stamens are flattened and like narrow petals.

4. *Semi-double*. Formerly called



"Semi-rose." Petals of uniform width, with stamens inter-mixed.

5. *Double*. Formerly called "Rose." A completely doubled flower. Stamens and carpels have developed into petals resembling guard petals. Very rarely one or two stamens or carpels in a flower may have escaped the doubling process.

Mr. Fewkes is inclined to feel that the term "anemone" might well be discarded because the type is constant in some varieties, while in others it

appears in side blooms. But it would seem wise to keep the term in use, since it clearly distinguishes, through the absence of any anthers, certain peonies which might otherwise be loosely classed as Japanese. The appearance of the anemone type in the side blooms of other types, and in the flowers of plants not yet established is of minor importance. One should not determine the type of a flower from newly-planted stock or secondary blooms alone.

Peonies for Exhibition

When the annual show of the American Peony Society opens its doors in the ballroom of the New Willard Hotel in Washington this spring, in conjunction with the annual show of the American Horticultural Society, it is the hope of the committee in charge that the display of blooms in the amateur classes will far surpass anything ever before seen at a national show. If every one in Washington and the surrounding territory who owns peonies will help, there is no reason why we can not accomplish this. There are classes in this show in which you may exhibit even if you have only one peony plant; no entry is too small and there are no entry fees. In the following paragraphs you will find instructions on how to prepare blooms for exhibition, taken by permission from an article on this subject by Harry F. Little, in the Manual of The American Peony Society.

No special laborious preparation or treatment of the plants is required to grow fine show blooms and no extensive experience is required to handle them in storage. Neither is there any special skill necessary to develop the flowers into form for the show after they are taken from the cold storage room.

Peonies can be held in storage for days or even weeks for exhibition as successfully as though freshly cut from the plants. In fact, peony blooms, but in the bud and opened indoors away from the sun, always show far more delicate and beautiful coloring than flowers that open on the plant; and many of the finest varieties only show their true beauty when handled in this way. With proper care in cutting, the different peonies may be placed in cold storage as they come to bloom, beginning with the earliest and ending with the very latest varieties, and all be developed for the show at the same time, long after the close of the blooming season.

Having good, healthy, well-established plants to begin with, cultivation and moisture become the chief requisites in obtaining fine show blooms. As soon as new growth is above ground in the spring cultivation should begin. With a fork or cultivator the earth about the plants should be turned over several inches deep for at least two feet from the crowns. Throughout the growing season this top soil should be stirred frequently to maintain a perfect earth mulch to draw and hold moisture to the plant. If the season is dry, water should be supplied in sufficient quantity to soak the ground thoroughly

to a depth of at least 18 inches every ten days until the flowers begin to open. One soaking is more effective than frequent light sprinklings.

With good ordinary garden soil no special fertilization is necessary, although a light top dressing of bonemeal applied in the fall, or wood ashes in the spring, in sufficient quantity to maintain the normal state of fertility in the soil may be beneficial. Do not use concentrated fertilizers. Overfeeding is injurious to the plants and produces oversized, atypical blooms.

As soon as the spring growth is sufficiently advanced, the plants should be disbudded. All laterals, or side buds, should be pinched off close to the stem and any weak or defective buds removed, leaving only the strong terminal buds to develop. Several days before the earliest varieties are ready to bloom, the plants should be gone over carefully, selecting the strongest and most promising buds of the varieties wanted for the show. A small paper bag, the grocer's half-pound size is best, should be slipped over each bud and secured in place by a small rubber band twisted about the mouth of the bag below the bud, just tightly enough to prevent the bag from being blown away by the wind. Do not tie it too tightly as a circulation of air within the bag is desirable. After the bag is in place, care should be taken to pull the bag well up against the under side of the bud otherwise the subsequent growth of the stem will force the bud up against the bottom of the bag and result in a warped or crooked stem. The purpose of sacking the buds is two-fold: first, the bags protect the maturing buds from damage from rain and sun; second, they furnish an ideal wrapping for the opening flowers when, in the half opened state, they must be packed for shipping.

After the bags are in place the buds should be labeled. By permanently labeling each bud before it is cut from the plant, much time and con-

fusion will be saved when the rush of cutting and handling is on and time becomes valuable. The common wooden tree labels are the most satisfactory ones to use because they withstand damage in handling and are not affected by water. The label should be attached about the stem, well up near the bud, so it will be visible when the stems are in water.

When the first flowers begin to open, close attention must be given to the sacked buds, for the whole secret of the successful storage of peonies is in cutting the buds of the different varieties at just the right stage. While this is a trick that must be learned by experience, there are certain rules that may be followed and the knack quickly acquired. By watching the exposed buds on the plants and by feeling the buds under the bags, one will quickly learn the *feel* of the buds ready to cut. Early varieties, such as *Edulis superba*, should be cut rather tight, just as the buds begin to swell and show color. Midseason varieties, such as *Frances Willard* or *Lady Alexandra Duff*, and most of the varieties except the very latest should be cut just when the petals loosen but before they begin to unfold. Late varieties such as *Milton Hill*, *Marie Lemoine*, and *La France* must be left on the plants until almost half open. Single, Japanese and semi-double varieties of scant petalage should be cut in tighter bud than the fully double varieties, such as *Jubilee* and *Phoebe Cary*. Very compact full-petaled varieties such as *Solange* must be allowed to develop proportionately longer on the plants.

As the buds reach the proper stage, they should be cut with stems 15 to 18 inches long, and all but the top foliage stripped off. Longer stems on show flowers, unless they are to be shown in large bunches or baskets, are superfluous and the extra foliage can well be left on the plants. All buds of one variety, even on the same plant, do not develop at the same

time, so it may be necessary to make cuttings of the same variety at several different times. Cut in the morning or evening if possible, and as fast as cut the buds should be placed in jars of water in a cool basement where the different varieties can be assembled and tied together for convenience in handling. The sooner they are transferred to cold storage the better. Orange crates with the center partition taken out make a good container in which to ship. Make sure that the

stems are dry before packing as water will spot the buds.

Twenty-four hours are necessary for the blooms to fully develop after being taken from cold storage.

The above instructions should make it very simple for you to prepare your flowers for showing. Why not try your hand at this most fascinating game. The competition is arranged in such a fair manner that you will have as good a chance as any one else to win a substantial prize.

A Shoppers' Guide

It has been suggested that this section of the magazine be continued even if the best purchasing season of the year is past, because every one finds a different lot of plants in each catalog from every other reader although the catalogs are quite the same! It will be continued therefore throughout the year and then be discontinued if there is no more demand for the information that it contains than was elicited by the January issue, which brought forth but two inquiries as to where some of the plants mentioned might be secured. To repeat, if you see mentioned some plant that you would like to purchase, write in to ask but inclose a stamped, addressed envelope if you want a supply, as this department is not subsidized by advertisers, but represents genuine editorial explorations.

There is only one lily that has ever really intrigued the writer and that is the lovely pink-tinted *japonicum*, more familiar in its older name of *Krameri*. This variety is offered year after year and yet never seems to like our conditions. Are there no volunteers to buy some and some more as often as necessary until a good wholesome stock is accumulated and a recipe for its safe growing is evolved. Another pinkish lily of slender charm is the nodding *cernuum*. This is a very

interesting little plant with its slender stems with many narrow leaves which wave about the stalk with the same merry twist that one sees in the perianth segments of some of the older narcissus.

The same lily catalog which caught my eye shows the old double Russian sweet violet. This hardy plant should be given a place in some low edging for the sake of its delectable scent rather than any beauty of its flowers.

Several southern lists have included species of *Raphiolepis*. One from Georgia had three, *indicum*, *ovata* and *delacouri*. These are interesting broad-leaved evergreens of doubtful hardiness at Washington, D. C., which should be considered in mixed planting in the South. One would like to see them in place of some of the millions of *Pittosporum tobira* which line every foundation in such towns as Savannah, in deadly monotony. They do not have showy flowers or fruits but the foliage is fine and the plants seem hardy. Some of the *Osmanthus* species might well be included in these southern plantings, both the more familiar *aquifolius* which is hardy in Washington, D. C., and the broader-leaved *fortunei*. In spite of their holly-like appearance these plants are more related to the privets and like

them make excellent hedges and stand pruning and trimming with impunity.

An astonishing number of lists are showing montbretias. These relatives of the gladiolus have been greatly improved in size and color range in recent years, especially in England. The modern varieties have flowers double the size of the old sorts and colors, from pale lemons to deep scarlets. The flower stalks are much divided and over-arch in a more graceful if less showing way than the gladiolus.

From the Pacific Coast come repeated offers of alstromerias. These are rather difficult to handle on account of the roots which are so easily broken, but once established and protected from freezing in winter make very distinct and striking additions in the perennial border. One of these lists contains as well, *ixias*, *sparaxis*, even *babianas*, as well as a long list of colored freesias and the newer *Watsonia* hybrids, and best of all the charming little *tritelia* in both its blue and white forms. This is a delightful little plant, quite hardy in Washington, D. C., making flat mats of rather grassy foliage from which rise small starry white flowers more or less tinged with lavender. There is a somewhat garlicky odor in the leaves but they need not be crushed.

Has any one ever tried the so-called California fuchsia in the East? Under its Latin name, *Zauschneria californica*, it is offered in many lists from the West with the note that it will endure much dryness. In California it makes a low and somewhat straggling shrub with many flowers of vivid scarlet hanging down in fuchsia-like fashion.

In a list from Long Island, seven lilac species are mentioned, *chinensis*, *julianae*, *meyeri*, *persica*, *pubescens*, *reflexa*, and *sweginzowi*. Of these, the last three at least should tempt the purchaser who has a taste for lilacs that are different.

If you are interested in pentstemons, a rather American family of plants, how many of the following do you

know? *Albidus*, *alpinus*, *angustifolius*, *aridus*, *barbatus*, *torreyi*, *barratae*, *cardwelli*, *coerulea*, *deustus*, *fruticosa*, *glaber*, *glandulosa*, *heterophyllus*, *humilis*, *lineolatus*, *menziesii*, *newberryi*, *oreganus*, *procerus*, *pubescens*, *pulchellus*, *rattani*, *richardsoni*, *roezli*, *rupicola*, *secundiflorus*, *stenosepalus*, *unilateralis*, *venustus*. A recent letter from a member who has busied herself for years in the wisest form of protection of our wild flowers, *i. e.*, the growing of them in gardens, as well as the protection from vandalism, asks why we should be so blind to the beauties of our own native species. The writer does not propose to make any answer, though he is tempted to several, but suggests that here at least is an opportunity for an American adventure which will prove exciting enough and runs no risks of being sordid, even if in part it should turn out tragically.

Of late years we have heard much of *Nepeta mussini*. A list from Oregon offers two others, *nuda* and *ukranica*, both of which are said to have darker blue flowers. This in itself should prove valuable, if the plants are not weedy, for one may always cast a suspicion of weediness on unseen *nepetas*.

A list from the Rockies offers seed of *Polemonium confertum*, *melitum*, *molle*, *occidentale* and *robustum*, six opportunities to add white to deep blue flowering plants to the rock garden in spots where there is some shade.

If you never tried a cactus from seed, try a package of *Echinocereus aggregatus*. The little plants appear like small green to pinkish red pearls on the surface of the seedflat, which should be filled with a coarse, rather gritty and not too rich soil, each bearing the seed on its head like a hat. These drop off in time and then the little plants fatten and finally show a crease in the top from which comes first a bunch of little hairy bristles and then a slow development of the typical cactus.

Words

Among the specialized vocabularies of the botanist which are useful to the gardener who feels he must read botanical texts, the terms relating to leaves are many and various.

A leaf, if it is all that a leaf should be, will have an expanded portion known as a blade or *lamina* (the latter a good Latin word originally meaning a thin plate, as of metal), a leaf stalk properly known as a *petiole* as distinct from the stalk of a flower which is a *peduncle* and a *pedicel* which is the stalk of a single flower in a compound inflorescence (all three words going back to the Latin, *pes*, a foot) and a pair of *stipules* which are attached to the base of the petiole and may vary greatly in size and shape. (Stipule is a diminutive of the Latin *stipes*, which means a stalk, so that stipules designate a little stalk, stem or blade.)

If any parts of the leaf are missing, they are most often the stipules and least often the blade.

In describing leaves there are several series of adjectives, one which describes the general outline of the leaf, another descriptive of the shapes of the extremities of the leaf either base or tip, and still others describing the marginal characteristics and the types of division of the blade.

In the first series which is illustrated with these notes, we have:

Linear, several times longer than wide and about the same width throughout.

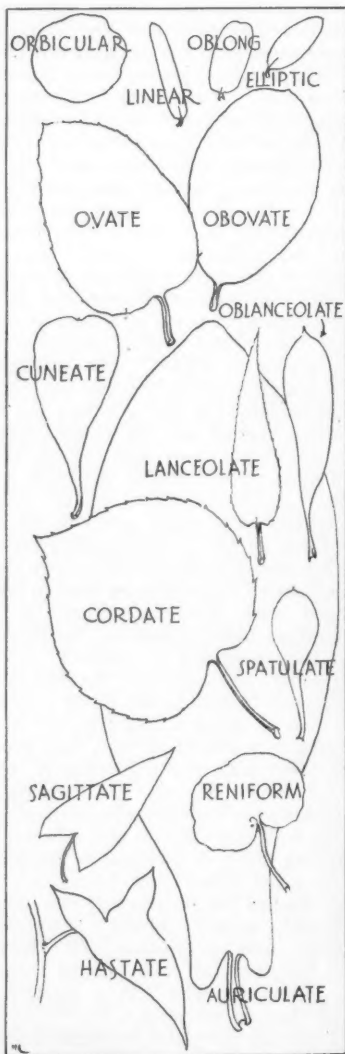
Lanceolate, several times longer than wide but tapering toward the tip.

Oblanceolate, the inverse of lanceolate.

Oblong, nearly twice as long as wide and never narrow.

Elliptic, shaped like an ellipse, the important fact being that each end is alike.

Oval, much the same as elliptic but wider.



Ovate, egg-shaped with the broader dimension at the base.

Obovate, the inverse of ovate.

Cuneate, wedge-shaped.

Spatulate, spatula-shaped.

Cordate, heart-shaped.

Reniform, kidney-shaped.

Auriculate, eared, usually at the base.

Sagittate, arrow-shaped.

Hastate, halberd-shaped.

The last few names recall the day when the doctrine of signatures was considered of importance and shapes of plant parts which resembled human organs were supposed to give valuable clues to the medicinal values of the plants used in treating ailments of the human counterparts.

(To be continued.)

The Gardener's Pocketbook

AUTUMN CROCUS

How eagerly does the gardener await the spring! With lengthening March days how he haunts the sheltered nooks along the garden paths where snowdrop and crocus have slept safely while winter's snow covered the land. And with what joy does he welcome the first tiny buds that brave the north wind's blasts. But, oh! how few the gardeners who give heed to the autumn flowering crocuses, wee messengers of joy coming at the turn of the year when the air is fragrant with the ripening harvest. Not decked in the vivid orange, scarlet and gold we associate with the late autumn flowers, rather as demure little quakeresses they come so quietly that, unless one has been watching for the small white tips to break through the soil, they are in full bloom before the gardener is aware. But who, once having known the joy of being greeted by these little treasures upon some frosty November day, would ever again garden without them. From Persia and Palestine, Asia Minor, Crimea, the slopes of Mount Athos and Mount Olympus; from Eastern Europe, the plains of Hungary, Sicily and southern Italy, Portugal, Spain and southern France along the Pyrenees they come to our garden gates. Let us make haste to bid them enter, giving them sunny corners where they may ramble about and increase at will, lest the day come when, wishing

to add them to our garden treasures, we are told, 'They may not enter here.'

Of the species I know there are two distinct groups, one flowering before the leaves push through the soil, and the other with well-developed foliage before flowering time. Of the first group, *speciosus* and its many varieties are the first to bloom here, beginning in September and flowering until late October. Of a heavenly soft blue, *speciosus* is a rare beauty, its color intensified by the darker blue lines on the inner segments and the deep golden orange stamens. It is most easily grown, and given a warm, loose soil it will soon weave magic blue carpets about the garden. As Chalice, that most wonderful of all yellow iris, deigns to bloom in my garden for several weeks each fall I am planning to use *speciosus* with it, letting the crocus run in drifts from the clumps of iris to the nearby gordonias, having visions of a symphony of beauty from the clear yellow of the iris, the white and gold chalice cups of the gordonia and the blue crocus against its low-matted bed of thyme. *Speciosus Aitchisonii* is probably one of the largest of the autumn flowering crocuses and is paler in color than *speciosus*, being nearer the lavender blue found in the Pasque flower of the Western States, and growing about the same height. A number of the crocus species are very similar to the little western "crocus" as the

Pasque flower has been called by countless generations of children of the plains and hills, and because of this, they have become the most loved of the little bulbs in my garden, gay reminders of my childhood when the hills and plains of a ranch in north-western North Dakota were my garden with Pasque flowers frolicking over the hills in the last week of March and early April, gallantly defying these winds that had not paused in their mad rush from the far north till they reached our hills. Plant also *Artabir*, *albus*, *Pollux* and *globosus* of the *speciosus* varieties. *Pollux* is about the size of *aitchisonii* but of much deeper blue purple color, while *globosus* is one of the most to be desired on account of its late blooming, flowering well into November. *Pulchellus*, a species closely related to *speciosus*, is slightly larger than the blue form of the latter, the soft lavender blooms, with orange splashes at the throat, being slightly fragrant. *Medius* is another beauty that should be better known. Its blossoms are of deep purple with red gold stigmata, opening more widely than any other species I know. *Zonatus* is a rosy lavender with golden orange spots in the throat giving the effect of a halo. *Cancellatus* is a soft blue-purple species found in parts of Asia Minor, Greece, Persia and Palestine, and will vary in color. Its variety *cilicicus* is more of a lilac purple with deeper veining. The leaves of this species often begin to push up before the blossoms fade. *Asturisticus* and *nudiflorus* are closely related species found in Spain, Portugal and southern France. Both are very desirable, the latter being deeper purple than *asturisticus* and having brighter scarlet stigmata. *Asturisticus* is a late bloomer and has been in flower as late as the tenth of November.

Of the species having the leaves well developed before the flowers appear, *longiflorus* is possibly the most desirable because of its great fragrance and its long swaying stems, that hold well against wind and rain. It varies

much in color from palest lavender to deep rosy lavender and flowers over a long period beginning in mid-October, lasting well into November. The variety *melitensis* is somewhat smaller than the type. *Ochroleucus* is a very small species, the creamy white flowers with their golden throats beginning to appear before the leaves. Though so small and growing not over two or three inches tall it is a tiny jewel of enchantment when at midday in late November it opens its lovely white cup with its golden flame, against the dark green of thyme. *Salzmanni* is another late blooming species, more to be desired for its lovely fountains of green leaves than for its lavender flowers, as their substance is rather poor. There are many other desirable species that should be better known in our gardens, such as *iridiflorus*, *sativus* and *Clusii*. The spring blooming species are just as fascinating, so why not add some to the next bulb order? In ordering the autumn flowering species it should be remembered they should be planted by July that their roots may have time to seek their daily rations before flowering time arrives, and the wise gardener will have his order placed in May. How sad would he be should he order late to find upon arrival of the bulbs that they had flowers en route!

The corms of most species are quite small and should not be too deeply planted. I like to tuck them away in warm, sunny spots in good garden vegetable loam, lightened with humus and sand, placing the corms on a bed of sand at a depth of about three inches, nearly covering them with sand before adding the rest of the soil. Thus they have quick drainage while the roots easily find the rich soil beneath. Give them ground covers of thyme, androsace, dwarf veronics or any other small loveliness that will protect their beauty from the too splattering rains, and as companions may they have Johnny-jump-ups, the most loved gamin in the garden, and

then on some late gray November day while the rest of the garden sleeps, may you hear the message they bring of spring days not too far away.

THURA TRUAX HIRES.

Ardmore, Pa.

EXTERMINATION OF MOLES.

With each succeeding spring there comes the lamentable cry from experienced gardeners and novices alike proclaiming losses out of all proportion to the number of tulip bulbs comprising the fall planting.

Argument goes merrily on between the scientist and layman as to which of our two formidable foes, the mole or the ground rat, bears the greater responsibility for these depredations and to what degree the two coordinate in the wholesale destruction yearly of the countless thousands of tulips which are "Born to blush unseen," etc.

Volumes continue to be printed in regard to the various methods employed for exterminating these pests—setting traps—applying bait and injecting costly poisonous gases—all seemingly to little or no avail.

The writer has suffered with the multitude incalculable expenditures and experienced little appreciable success.

In the spring of 1927 a more economical plan was hit upon which time has proven efficacious and worthy of passing on to others.

Like most worth-while prescriptions, however, it should be executed either with scrupulous care and thoroughness or else not attempted at all.

Union Carbide (as is used for automobile lights and bicycle lamps) procurable in two-pound cans is required in quantity according to the amount of ground space to be covered. Two persons are necessary for the skillful performance of this tedious operation. The one preceding plunges a sharp instrument into the runway at intervals of two feet, dropping one heaping teaspoonful of carbide into each hole thus made. The assistant fol-

lows, bearing a watering can (the spray cap detached. With one hand he pours a dash of water on the carbide, which instantly releases the gas, while with the other he quickly seals the aperture with a clod of earth taken from a large hamper or bucketful carried along for the purpose.

It is this carbide gas permitted no outlet and injected thus throughout the circuitous passages of runways which serves to trap and exterminate these cunning garden pests.

The experiment was made in the spring of 1927. All infested ground together with both sides of an extensive privet hedge were carefully and thoroughly treated. At the time of writing, March 14th, 1929, a season in this section when depredations are easily detected, there is no trace of past or pending evil. The writer believes her garden at last rid of these unwelcome visitors. Certainly the situation may be said to be finally and permanently under control.

MARY MCD. BEIRNE.

Ashland, Va.

Hesperis nivalis, Boiss. & Hausskn.
(See page 80.)

Hesperis nivalis, the snowy dame's rocket, is a new plant and comparatively unknown, yet in positions where it flourishes it will soon become a favorite, I believe. Introduced and described as giving the effect of a white perennial phlox blooming in late May, it has justified the description but it has not done well for me although blooming nicely. It died immediately after blooming and neglected to form seed. It would do much better, I have an idea, in lime soil, as it is not of an acid-loving family although its larger relative, the old dame's rocket, doesn't seem to mind whether soil is acid or alkaline. The new rocket grew only a foot high with me, the stem thickly clothed with more delicate and attractive foliage than the old-fashioned dame's rocket and with larger flowers and



Sherman R. Duffy

Hesperis nivalis

[See page 79]

a rounder, heavier spike. When first opening the illusion of a perennial phlox was well carried out but was lost as the spike lengthened. It has all the spicy fragrance of the old-fashioned rocket.

Chicago, Ill.

S. R. D.

Statice latifolia Smith. (See page 82.)

The sea lavender with its clouds of misty lavender bloom is one of the midsummer delights in the garden both as a decorative plant and for cutting. Known to gardens for years as *Statice latifolia*, its name has been changed by botanists to *Limonium latifolium*. It is a long-lived perennial making a big cluster of deep-going fleshy roots from which a rosette of large rather coarse leaves appear and in late season lie flat upon the ground while above them rise the much-branched stalks of tiny lavender flowers, surprisingly small and delicate in contrast to the heavy foliage. It is a fine companion plant for the misty white of *Gypsophila paniculata*, and especially the fine new double and truly white forms, Bristol Fairy and Ehrli, which are indistinguishable so far as I can see. This gypsophila has the advantage of continuous bloom until cut by frost over the old type paniculata which goes out of bloom too soon to be its best with the statice. One of the prettiest effects with the statice that I have seen is to use it as a background for pink or yellow gladiolus, particularly the slender sprays of the primulinus hybrids. I have used the pink Myrtle with it. I like to plant the smaller-sized gladiolus bulbs about the statice so that the spikes will not be tall enough to rise too far above the misty sea lavender but will be surrounded by it.

The statice is easily raised from seed and makes a fine border along a path for midsummer effect. There is a slight variation from rather washy lavender to pure and deeper tones among the seedlings. Some of the

darker tones have been propagated and named but they can be obtained by selection from seedlings.

Chicago, Ill.

S. R. D.

Dodecatheon meadia L. (See page 83.)

The shooting star which once decked the prairies of the central States by the acre or even the square mile is one of the vanishing Americans among native plants, being restricted largely to the railroad rights of way, the railroads acting as conservators of the prairie flora. It is one of the most beautiful of the native prairie flowers and under cultivation becomes an imposing plant, holding up its umbels of meteoric bloom to a height of more than thirty inches under favorable conditions. Although a plant of the open prairies it is usually referred to as if it were a wood plant with the statement that it desires a moist shady situation. It is an open sun plant on the prairies and requires no more moisture than furnished by the ordinary spring rains. Shortly after blooming its leaves disappear and it is dormant until the following spring, being entirely unregardful of summer droughts. I have found that it reaches its maximum development in slightly acid soil where it has full sun in the forenoon and shade in the afternoon. It is a long-lived perennial and useful to tuck in all over the garden, coming into full bloom just as the May Flowering tulips are passing and just before the irises swing into their display. As it is by nature a plant that grows in thickly crowded vegetation, it does not mind crowded quarters in the least, thrusts up its spikes, blooms and disappears, with faithful regularity. It requires three or four years to come to good blooming plants from seed. The seed is freely produced and should be sown in the fall. It will germinate thickly the following spring, make no more than seed leaves and then disappear. If undisturbed the plants will appear with small true leaves the following year. It plays hide and seek

*Sherman R. Duffy**Statice latifolia*

[See page 81]



Sherman R. Duffy

Dodecatheon meadia

[See page 81]

with me, for whenever I decide I shall start transplanting seedlings, I always find that they have disappeared, so it is best to handle it when in early active growth, for the very young plants seem to disappear in a day's time.

Chicago, Ill.

S. R. D.

Phlox stellaria Hort. (See page 85.)

Of the early phloxes in addition to the common forms of the so-called moss pink *Phlox subulata*, the most delightful seem to me to be *P. stellaria*, *amoena*, and *divaricata*, and in habit and freedom of bloom the delightful blue gray *stellaria* is one of the finest.

This is very similar to the subulata phloxes in foliage but is of taller and looser growth, soon making a wide-spreading patch covered with its French gray blooms.

The same Phlox, it should be noted, is often sold by nurseries under the name *P. subulata lilacina*. It is a handsome companion for the pink tulips such as Clara Butt, Flamingo, Inglescombe Pink or the more brilliant Petrus Hondius. It is one of the neatest and most attractive of the dwarf early phloxes and a vigorous grower, and less subject to scalding from winter sun than the subulatas in my garden.

Chicago, Ill.

S. R. D.

Note on Phlox nomenclature. It must be borne in mind that *Phlox stellaria* Hort. is not the plant so named by Gray, but is a garden hybrid of *P. bifida* Beck and *P. subulata* L.

E. T. W.

Cotoneaster divaricata Rehd. & Wils. (See page 87.)

Although the branches and twigs of this species seem rather like those of *C. horizontalis* which was illustrated in the last issue, the general appearance of the plant is very different, chiefly from the fact that the plant is larger in all its parts and grows in a more free and open fashion. Near the District of Columbia it makes a spreading shrub not over five feet in height

with rather compact habit and many strong shoots well clothed with slender parallel branches. The leaves are smooth and shining green, much like those of *C. dielsiana*, the species which it most resembles, except that the leaves of the latter are deeply veined. The flowers are not conspicuous, with rosy red calyces and pinkish petals, but the fruits, which ripen in the late summer, are very brilliant and keep their color until the middle of winter. The leaves turn brilliant colors in the late autumn and drop almost entirely before the spring. Propagation is most simple by seeds.

Washington, D. C.

Iris spuria and its allies. (See p. 88.)

Among the more neglected iris in the catalogs are this species from the Mediterranean regions and its near relations, which are much its counterparts except for color. It seems probable that this plant, like many others that are difficult to transplant, has been neglected by the nurserymen for no other reason. This difficulty can best be overcome by spring moving and considerable patience on the part of the new owner should the plant prove sulky the first year. The large rhizomes are very woody and when dried out in shipping seem reluctant to awaken again. The plant should be planted in bold groups and all its colored forms, including the nearly allied *Iris aurea* and *Iris ochroleuca*, may be used with it. In the original species the color is a clear blue lavender with a delicate yellow blotch on the falls. There are both lighter and darker named varieties. *Iris aurea*, as its name indicates, is a golden yellow and *Iris ochroleuca* is a pure white with golden circular blotches on each fall. The flowers are of fairly large size and shaped with stiffly arranged parts somewhat in the fashion of the Spanish iris. The plants like a heavy soil with considerable moisture in the growing season and dry weather through the summer. Such species



Sherman R. Duffy

Phlox stellaria

[See page 84]

as these are much more suitable for planting along the margin of pools than are the bearded iris which have no natural association with water. Furthermore, the stiff, vigorous foliage and erect shoots of flowers have a grace by the waterside that does not appear in the common garden iris.

Washington, D. C.

Narcissus, "The Fawn" and "Irish Pearl." (See page 50.)

The classification of narcissus is a very arbitrary matter devised many years ago in order to give some working scheme to the hosts of garden forms which were coming into cultivation. Recognizing the natural relationships of the original species and the hybrids resulting from the interbreeding, a fairly satisfactory scheme was evolved as time has gone on and continued breeding has broken down the lines of demarcation that once were so apparent, with the result that the beginner of to-day is often confused as to where one section begins and another leaves off.

Both varieties here figured are representatives of the Giant Leedsii Section. This is a section that had to be recognized after seedlings appeared in which a trumpet and an ordinary Leedsii form had been the parents. They differ from the ordinary Leedsii in their longer and more trumpet-like bowl, which does not, however, assume the proportions of a trumpet.

Both of the plants illustrated have proven good garden varieties. The first, raised by the late Mrs. R. O. Backhouse, is a sister seedling to Sirdar and Lord Kitchener, which are better known in this country than this sort. The trumpet is a clear lemon yellow on opening and fades to a faint amber yellow. The other is a more recent variety and was raised by Guy L. Wilson. Its flowers have admirable form and delicate clear coloring with a white perianth and pale lemon yellow cup.

Washington, D. C.

PAPAVER

There is a great deal of pleasure to be derived and also some very interesting discoveries to be made by trying out plants which, while not new to other parts of the country, have never or rarely been grown in one's own particular section. Many of the stand-bys of the North are not known in North Carolina. Some will succeed here (Raleigh, N. C.) and some will not. I have struggled over Iceland poppies and Godetias with no success whatever, but have found *Nepeta mussini* will stand our hot weather perfectly, even to the extent of being transplanted in June without wilting a leaf. *Veronica spicata* flourishes and blooms until frost if the old flower stalks are kept cut off. These two plants I raised from seed. Well-grown plants of the plummy bleeding heart (*Dicentra eximia*) have done beautifully the first year and I trust will do equally well next year. They bloomed all summer long up to the middle of November, but it takes more than one summer to prove a plant's adaptability to this climate. The season this past year was a rainy one.

One plant that has stood the test for two years and is in flourishing condition now is one that I have never seen except in the gardens of Lowthorpe School at Groton, Mass. I gathered my seed there. It is a lovely orange poppy, the bloom almost identical with the Iceland, the foliage similar but fuzzy instead of smooth. They call it there *Papaver attica*. It is not in the trade so far as I know, but it should be, for it is a very valuable addition to our gardens here. My plants started blooming on the 17th of April, and were still blooming the middle of July, due partly to the fact that the seed pods were very regularly cut off every day or two. There is one objection to it, the cut stem exudes a juice that produces a brownish stain on one's clothes—but it is very easy to guard against this.

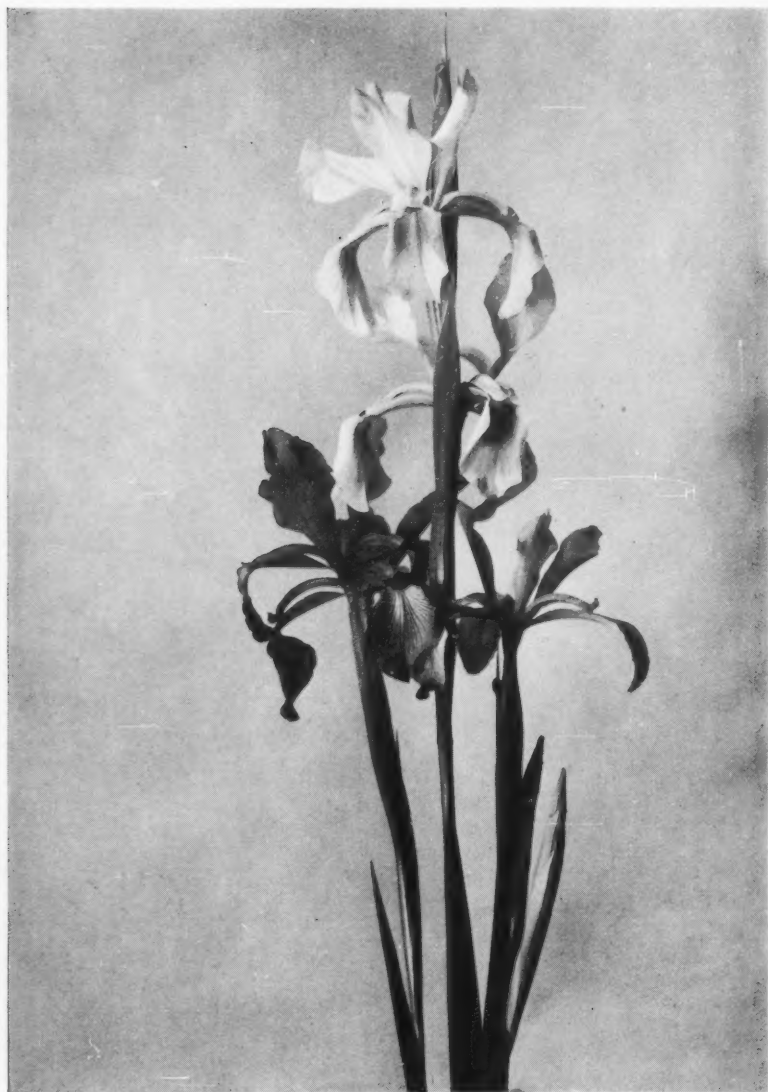
ISABEL B. BUSBEE.



Lilian A. Guernsey

Cotoneaster divaricata

[See page 84]

*Lilian A. Guernsey**Spuria irises*

[See page 84]



H. E. Allanson

Lilium sargentiae

[See page 80]

Lilium sargentiae Wilson. (See page 89.)

This handsome lily, worthy of a place in every garden is one of the many gifts to our gardens from E. H. Wilson, who discovered it in Western China in 1903 and named it in honor of Mrs. Charles S. Sargent, wife of the late Professor Sargent, many years Director of The Arnold Arboretum at Jamaica Plain, Massachusetts.

The flower is distinctive, its dark pistil and stamens contrasting vividly with its wide white mouth. It is funnel-shaped, flushed rose purple to purple without and fragrant. It is a stem rooting lily requiring deep planting, growing from three to four feet or more when well established and bearing one to many flowers. It is easily propagated by bulbils which appear in the axils of the leaves much as do those of the familiar tiger lily. In spite of this, Mrs. Sargent's lily is still rare in cultivation although it is listed in the catalogs of several growers and dealers. While it is not as easy to manage as the Regal Lily, it is not especially difficult and if given a loamy soil with good drainage, a mulch of leaf soil, a ground cover to shade its roots, but full sun for its flower stalk, it will probably repay fully any attention given.

H. E. A.

Takoma Park, D. C.

PLEASE NOTE

In publishing the two notes that follow, the editor feels that our readers will find food for thought. He confesses to a sad past in regard to trenching in his own garden plot and offers only the defense that he has neither the sand of Mr. Duffy's garden nor the deeper, heavier soil of Mrs. Wolcott's and suspects that his plants probably do not fare as well as either! Surely there must be other opinions in the matter and other proofs of "the pudding."

TRENCHING, PRO AND CON

After carefully reading the advice

of your correspondent, "S. R. D.," in the January number of the NATIONAL HORTICULTURAL MAGAZINE, regarding the preparation of soil for a garden, I can not refrain from an argument.

Your contention that it is not necessary to prepare soil to exceed six inches in depth (the depth of an ordinary spade, as you recommend) is so opposed to my own experiences in the matter that I want to express myself.

You contend that a farmer does not plow his soil over four to six inches deep for a crop. That is true. And it is also one of the reasons for his not having better crops. And there is much less reason for his having a deep soil than there is for a gardener, from the fact that he is growing shallow-rooted annuals. The exception to this rule is when growing clover or alfalfa, which is quite another matter, as they do their own plowing, penetrating the soil to a depth of three feet or so and furnishing their supply of fertilizer in the shape of nitrogen taken from the air and deposited in nodules on their roots, which is the reason for their being grown to be plowed under as a fertilizer.

We experimented on our own farm here when we first bought the place. It was very badly run down and we were not able to furnish the fertilizer necessary, so we tried plowing 12 to 15 inches deep and we produced good crops, in spite of the fact that all the surrounding farmers maintained we were ruining our farm by turning up the subsoil.

I have found that perennials are, in the majority of cases, very deep rooting if there is any food deep in the soil to go after. And inducing them to send their roots deep into the soil will take them through the winter, with frost often three feet deep, and through the summer, with its extreme heat and drought, without injury.

Several years ago I had positive proof of this in my own garden in the city. When I made my garden I had the borders dug out three feet deep (by the yard stick). We then

filled the trench half full of coarse manure, with its full value intact, as none had been lost by exposure to the air. Then the poor soil was filled in on top of that and the whole well tramped down. Now a thick layer of rotted manure was added to the trench and it was then filled up with good garden soil and crowned several inches above the level of the lawn to allow for settling. This was all in direct opposition to the ideas of the old gardener doing the work, as he assured me it would ruin my plants to have so much manure.

We then planted the borders, using all hardy perennials with some Paeonies and many bulbs. The garden soil near the top made an excellent planting medium for the new plants and they established themselves very quickly. Needless to say, they grew beyond all precedent.

Several years later I was away from the garden all summer and it was neither watered nor weeded. We had one of the hottest, driest summers on record. No rain for about twelve weeks, and the thermometer 90 to 100 degrees much of the time. I did not expect to have any garden left, but found in the fall I *had not lost a plant*. This was due solely to their deep root growth. Do you think this could have happened with a six-inch preparation of the soil?

The deep cushion of coarse manure in the bottom of the trench serves to aerate the soil and promote root growth as well as furnish food for the plants. This can also be seen in a field where tiling has been done, as growth is more than twice as good where the tile runs.

"Digging a hole with a trowel and chucking them in" is not my idea of good planting and in nine cases out of ten will result in loss of perfectly good nursery stock.

It seems to be unfortunate for such misleading advice to be given out to amateur gardeners by a journal of the standing of the NATIONAL HORTICULTURAL MAGAZINE, as there are many,

many amateurs who take your word as gospel and then blame themselves for poor results, and are naturally discouraged and perhaps give up the struggle.

Not only the perennials but many of the Alpines send their roots into the ground three feet or more if there is any inducement for them to do so. But if their roots must break their way through heavy, infertile subsoil, they can not go as deep as they would if the way was a little easier.

Perhaps, to quote Kipling, that "Gardens are not made by saying 'Oh, how beautiful' and sitting in the shade," would not be amiss, for certainly *good* gardening is not a lazy man's job.

MABEL WOLCOTT.

Jackson, Mich.

In the first place, my remarks concerning trenching were made from the standpoint of an amateur gardener and for amateur gardeners like myself to whom gardening is a pleasant pastime of leisure hours, none too many, not to be burdened with unnecessary and onerous toil. The advice that trenching is altogether unnecessary in the ordinary average soil in which practically all amateurs plant their gardens is not in the least misleading and altogether true.

The stereotyped advice, "You should trench," or "You ought to trench," is a part of the ritual fundamentalism of horticulture which comes into conflict with the facts developed by practical experience in the evolution of gardening.

Concerning these ritual fundamentalisms which seem to have been handed down from generation to generation and accepted on simple faith and authority and without test or examination, I think a line by Prof. Sidney B. Mitchell is very apropos. "Peculiarly enough," says Prof. Mitchell, "some members of our craft seem so anxious to make it difficult that they lay down arbitrary rules which have not even the sanction of nature."

And to counter on Kipling, the advice of the French sage, Michael, Lord of Montaigne, concerning education, is likewise in point,—“Take nothing on simple faith and authority. Test and examine the subject for yourself and know that you know or that you doubt.”

Having gardened in the same spot with satisfactory success for 30 years without trenching and in soil none too good and having inspected scores of fine gardens where no trenching was done, nothing but the ordinary spading, I haven't the slightest hesitation in again saying that the general advice, “Trench,” is bunk.

These fundamentalist precepts which seem to seek to make gardening something difficult, burdensome and abstruse, very often deter and discourage an amateur who has an idea he would like to start a garden. He stops when he begins studying the question of operation and encounters the “trench” advice.

I am inclined to think that Mrs. Wolcott's statement that the alfalfa does its own ploughing answers the argument. It does its own trenching, too, as do all deep-rooting plants. In this connection, I have never been able to understand why the arbitrary depth of three feet seems to be mentioned in all trenching advice. Why three feet? Some plants go deeper than that if the idea is to work the soil to the depth of the roots.

Fertilizer, plant food, works from the surface down, not from the depths up.

It seems to me far better and more practical advice in order to encourage the growth of gardens and gardening to declare that it is not an onerous and burdensome pastime, fraught with cruel labor, but as easy a pastime as any in which one can indulge and far more interesting and entertaining.

For the commercial grower and his intensive methods of culture to produce salable plants or for those who have gardeners and hired help, trenching can be done if they so desire. But for the average gardener with the soil

of average fertility encountered in the average dooryard who does his own garden work, the advice to trench is misleading and a deterrent to the growth of gardening. It is merely a self-imposed martyrdom altogether unnecessary. He can grow a perfectly good garden without it.

If I lost nine out of ten plants by my casual methods of planting I should not need to do so more than once to be convinced of the error of my ways. But I don't. They grow and confirm me in my garden unorthodoxy.

Chicago, Ill.

S. R. D.

SEEDS

An obscure legend to the effect that the longer the life of a plant the more difficult it was to raise from seed and which caused almost every other means of propagation to be resorted to rather than seed resulted for many years in limiting the seed raising of gardeners practically to the monocarpic plants, that is, those which bear but one crop of seeds and die, such as the annuals and biennials. This was necessary because there was no other way to perpetuate them.

With the advance in garden experience and information and the freeing of ourselves from traditions that on examination do not prove to have sound basis, we do not hesitate to raise almost anything from seeds,—trees, shrubs, woody vines, bulbs, perennials, as well as biennials and annuals. We know that it is not a matter of difficulty at all to raise lilac bushes and mock oranges from seed and having blooming shrubs in the course of three or four years in some instances. Rhododendrons and azaleas are raised from seed by many gardeners and the cult of iris, dahlia and gladiolus raisers from seed to obtain new varieties is growing in volume with each season.

The miracle and mystery of seeds is a never-ending source of fascination and to me is one of the most interesting parts of gardening. I should feel

quite lost if I didn't raise something from seeds.

It is most interesting to grow up with a tree raised from seed. I have such an elm, now a stately tree, which I can remember as only a few inches high—elms are fast growers.

There are several excellent reasons for raising plants from seed. The first is necessity when there is no other means of propagation, the commonest reason. The second is economy, as it is the cheapest way to get plants in quantity. A third is to develop new varieties or to develop a special strain. A fourth is that seedlings usually are more vigorous than plants long vegetatively reproduced and the last and perhaps the most thrilling is adventure.

There are many puzzling problems about seeds. One is their viability, that is to say, their life. Some are short lived, losing vitality shortly after they mature. This is an explanation offered for the ill success many of us have had in endeavoring to raise the much-heralded blue poppy, *Meconopsis Baileyi*, from seed and getting no germination. Others if not sown immediately the seed ripens and before the seed covering becomes hard and dry are very slow to germinate. Those who have tried to raise gentians have encountered this circumstance and many rock gardeners have been discouraged by gentians not appearing from seed within a reasonable time.

There is no difficulty and no particular skill attaching to the raising of the common annuals other than to refrain from burying the seed too deep and to abstain from over watering. The greatest infant mortality among plants, it seems to me, is due to drowning, either by artificial watering or by the rains. To get a full crop from seed planted in the open ground some sort of a covering is necessary to break the force and wash of heavy spring rains.

For the heavier and coarser seeds the ordinary wire window screen is an ample and sufficient protection,

breaking the force of the rain. For the finer and more delicate seeds sash either glazed or covered with some of the light glass substitutes is essential, to be removed on fair days and placed over the seed bed when rain threatens or is forecast. Next to rain, infant mortality among plants is caused by exposure to too much sun on hot days, and drying winds. Shade from blazing sun should be provided if the seed bed is not made in a shady spot where it should be.

For the rarer seeds and plants that are more cherished than the common annuals, biennials and perennials extra pains should be taken in order to be certain of bringing the young plants to healthy maturity. A suitable seed medium for sowing is the first consideration. Some years ago I found a series of prescriptions for soil mixtures for seed sowing that have proved to be excellent and I regret that I no longer recall the source and can't give proper credit.

No. 1, for the ordinary run of plants with no known definite likes or dislikes as to soil. Six parts of good garden soil, two parts of well-decayed stable manure or one part pulverized sheep manure or shredded cow manure, two parts of leaf mold or humus and one part of torpedo or silver sand and a handful of pulverized limestone for all plants except those known to be lime haters, the proportion of sand to be less if the soil is not close grained and tenacious. The mixture to be run through a sieve. For seeds known to be a long time germinating add a little broken charcoal or coke.

No. 2, for delicate plants and the so-called Alpines, two parts of porous ballast material, such as small pieces of coke, finely broken pots or even brick, one part of good garden soil, one part of leaf mold or humus. For lime-loving plants substitute pulverized or limestone chips for the ballast. Water these from below and water all fine seeds in either mixture from below.

The depth to plant seeds is often

puzzling and no rule of thumb can be laid down other than that very fine seed should not be covered unless by a sprinkling of fine sand. Otherwise they should be merely pressed into the soil. The coarser sized seeds it is sometimes advised to plant twice their diameter, a rather loose measurement.

Certain seeds must be planted on edge to germinate. Others eye down, but the specifications, when necessary, are usually included with the seed packet.

The greatest difficulty the average amateur gardener finds is to get just the right degree of moisture without starting damping off. Sharp drainage in the seed box or seed bed should be provided to obviate any danger of waterlogging.

Temperature is another consideration. Some seeds germinate best at low temperatures. The delphinium is one of these. The snapdragon is another that likes a cool early start for garden purposes.

The primroses like a cool start and the advice to sow them before March 15 unless it is possible to sow the seed as soon as ripe is often given, although I have had good success with later sown seeds when given a shady position and taking care to see that they were maintained in a continuously moist condition, this applying particularly to the candelabra types.

In general the price of success with seeds is eternal diligence until they are well on in the world. The chief factors are protection from too much water, too much heat and sun, and from drying winds. While seeds may be sown in the open ground successfully with ordinary care, it is much safer to have some sort of frames for them with protection of lath, wire screen or glass substitutes. Half size cold frames, that is, 3 x 3 or 3 x 6 feet, are now made that are easy to handle and can be set anywhere that it is desired to make a seed bed. Homemade frames for the purpose can be knocked together easily and I should

not advise any one to try to raise choice seed without a frame to assist in regulating good germinating conditions.

Many seeds of slow germination are sown to best advantage either in the fall or in mid-winter and given a weathering of freezing with an occasional application of snow. This is true of many of the so-called alpiners which may thus be deceived into believing that they are back among their mountain snows and be spurred into growth.

Irises, fritillarias and sometimes narcissus seed I have found to respond to this treatment.

All other conditions being favorable, another factor in infant plant destruction is too thick planting of seed. Plant thinly. It will double a crop in giving the baby plants a chance to get a sturdy start.

In raising the hardy perennials in order to get the best results a lot of room is required, more, unfortunately, than most of us have at our command. This is particularly true of Oriental poppies, delphiniums and pyrethrum, three garden stand-bys, and to a less extent with columbines.

The most effective method, if possible, is to raise several hundred plants from seed, transplant them into rows and grow like vegetables until they bloom and then select the finest types, throwing away the inferior types. Named varieties of plants are the selections from many thousands of seedlings. Any gardener is thoroughly competent to raise fine forms, but there should be no rush to name them, as there is every likelihood that they will be duplicates or very close to existing types.

There are many wonderful things we might do in raising plants from seed if we had the space and the time at our command, but it is always possible to do a few of them and have the fascinating interest of raising our own plants.

S. R. D.

Chicago, Ill.

A Book or Two

Starting Early Vegetables and Flowering Plants Under Glass, by Charles H. Nissley. Orange Judd Publishing Co., New York, 1929. 302 pages, illustrated. \$3.00.

A practical text divided into three parts. The first five chapters deal with the types of structures used, beginning with the most simple sorts of frames and advancing to discussion of greenhouse structures with full discussion of material and structural details. The second part treats of important factors in growing plants,—seeds, soils, sowing and transplanting, insects and diseases. The final section discusses the crops, with most of the discussion given to truck vegetables. The amateur will read it with interest and the grower with profit.

American Plants for American Gardens, by Edith Roberts and Elsa Rehman. The Macmillan Company, New York, 1929. 131 pages, illustrated. \$2.00.

Here are gathered together the articles that have been appearing in series in *The House Beautiful* under the title of "Plant Ecology," which was a much happier name than the present one, for strictly speaking, this is not a garden book. It is rather a book for the nature lover, the acute and sensitive person who is delicately attuned to the harmonies which come from the rightness of things. For the person who is concerned with the development of naturalistic plantings, with creating settings for summer homes in wild country, with preserving the beauty of existing natural growths, who is desirous of knowing the beauties peculiar to special places and circumstances, the book will be of great interest, but for the person who is actively and aggressively gardening, one wonders.

Evergreens for the Small Place, by F. F. Rockwell. The Macmillan Company, New York, 1928. 84 pages, illustrated. \$1.00.

Another of The Home Garden Handbooks from the indefatigable Mr. Rockwell, and like its predecessors, of distinct value to the beginners for whom it was written. The advice about evergreens for foundation plantings should be taken to heart, especially by nurserymen, who may never see it, and the chapters on Soils and Fertilizers, Planting and Transplanting and General Care will be indispensable.

Notes on Mesembrianthemums, by H. M. Louisa Bolus. The Specialty Press of South Africa, Ltd., Cape Town, Wynberg, Cape, South Africa. 1928. Part I, 156 pages, illustrated.

As is stated in the preface, this book is made up chiefly of notes which have appeared serially in "South African Gardening and Country Life" within the last few years, and readers of that magazine will find much that is familiar.

To the Easterners who know only the old ice plant with its beaded leaves and the magenta flowered fig marigold that appears in market stalls with lantana, verbena, vinca and lobelia at the turn of spring, when apartment dwellers begin to think of window boxes, and even to the Californian, who knows several other species that festoon low walls and cover otherwise barren stretches with their coarse and rubbery growths, the book opens new vistas.

The genus which began with a small number of species has grown to huge dimensions and is now being divided into several genera. The present work concerns itself chiefly with a brief historical note, a discussion of the

main characteristics of the group; descriptions of new and little-known species; descriptions of new species and systematic keys for the botanists. There are numerous illustrations, many in color. It is to be regretted that the line drawings are so crowded together in each figure that they are not only confusing but ugly. The colored illustrations and photographs are very good and well reproduced.

Gentes Herbarum, by L. H. Bailey, Vol. II, Fasc. 1. Ithaca, N. Y., 1929. 58 pages, illustrated.

This issue of this rather technical paper is composed of three articles, the longest of which is the first, in which is discussed the "Case of *Ophiopogon* and *Liriope*." As the snake-beards have been mentioned from time to time in our magazine, this is the most interesting to follow in spite of the fact that the gardener never loses sight of the botanical side of the treatment. For him, the final outcome of it all, the loss of the name *Ophiopogon* and the division of the species between *Mondo* and *Liriope* is not so important possibly as the fact that there are called to his attention a considerable number of evergreen grassy-leaved plants with more or less showy flowers for which he can conceive a varied list of uses. The text has the great advantage that it is beautifully illustrated, has very readable discussion and remark and, best of all, comment on hardiness, a factor which is often missing.

The second article differentiates between *Diervilla* and *Weigelia*, all of which have been grouped under the first name for some time. The latter name is now reserved for the showy plants which we know well under the common name of weigelia, and only the American species are kept under *Diervilla*.

The last and shortest article deals with *Muehlenbeckia*, which is known best to gardeners by the species *complexa* and *axillaris*, the first forming

the great mattress-like vine so often seen in California, and the latter a similar but diminutive mass in the rock gardens of the East. Under the new arrangement these species acquire a new generic name, *Calacinum*.

Monograph 9. Economic Botany of Alabama, Part 2, by Roland M. Harper, University, Alabama, 1928. 357 pages, illustrated.

This, as the subtitle states, is a "Catalogue of the Trees, Shrubs and Vines of Alabama, with their Economic Properties and Local Distribution." It is, as such books must be, of greatest use in the territory which it describes, but the Northern gardener who reads it, or even thumbs through its pages, turns a wistful eye to that country which claims as its own *Azalea prunifolia*, *serrulata*, *Gordonia lasianthus*, *Stewartia malacodendron* and *pentagyna*.

The Propagation of Hardy Trees and Shrubs, by G. C. Taylor and F. P. Knight. Dulan & Co., Ltd., London, 1927.

While propagation is primarily the business of the professional nurseryman, there is no aspect of gardening which has more reward to offer the amateur than the practice of propagating those plants which appeal to him most, or which are new or rare. It is rather foolish to waste time and garden space on the propagation of the easiest things, but when one plant of a novelty can be purchased immediately on its introduction with the knowledge that it can soon be multiplied, the amateur will soon come to purchase rarities. The present volume, while British, is as useful a small book as one could imagine and fully describes what all gardeners should know about the raising of seedlings, budding, grafting and layering, with special chapters on conifers, the appliances used, and an alphabetical list of important trees and shrubs.

SEVEN APPLE GROWERS

average **\$267.69**

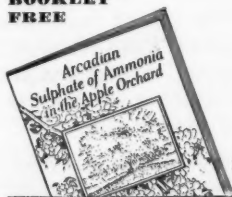
NET GAIN *per acre*

HERE are reports from seven apple growers in seven states from New York to Kansas. These growers all used Sulphate of Ammonia on part of their orchards and checked the gain on the fertilized trees. The results show a net gain of \$267.69—over and above the cost of the fertilizer. Proof enough that fertilizing apple orchards with Arcadian Sulphate of Ammonia pays.

Grower	Variety	YIELD PER ACRE IN BUSHELS			Net Gain Due to Sulphate
		Without Sulphate of Ammonia	With Sulphate of Ammonia	Increase	
O. C. Olsen, Geneva, N. Y.	Baldwin	460	652	192	\$ 56.40
Peter Sperow, N. Mountain, W. Va.	York	330	550	220	124.00
Edgar Hurley, Sabina, Ohio	35 year old Mixed	100	160	60	114.00
John Humphries, Monticello, Ind.	22 year old Maiden Blush	120	240	120	294.00
Ed. Strickfaden, Pekin, Ill.	18 year old Grimes	500	805	305	750.84
O. C. Webster, LaCrescent, Minn.	20 year old N. W. Greening	296	472	176	285.20
Walter J. Braun, Atchison, Kan.	Jonathan	204	346	142	249.36
Average 7 Growers		287	461	174	\$267.69

Note: Tests Peter Sperow made by Joseph B. Prettyman, Vocational Agricultural Teacher, as cooperator; Edgar Hurley by Levi Lukens, Lee's Creek High School, as cooperator.

**SAMPLE and
BOOKLET
FREE**



ARCADIAN

Reg. U.S. Pat. Off.

Sulphate of Ammonia

The *Barrett* Company

AMMONIA-BENZOL DEPARTMENT

Atlanta, Ga.
Memphis, Tenn.
Norfolk, Va.

Agricultural Bureau
New York, N. Y.

Cleveland, Ohio,
San Francisco, Cal.,
Toronto, Ont.

The Barrett Company (address nearest office)

N-4-29

NP

Please send me free copy of "Sulphate of Ammonia in the Apple Orchard." Also send me free sample of Arcadian Sulphate of Ammonia.

Name

Address

KINDLY PRINT NAME AND ADDRESS

You are cordially invited to visit the **IRIS GARDENS** of the undersigned during the month of May

By Auto—Cross Key Bridge, get into Rosslyn, and drive west on Lee Highway for three miles, until the Glebe Road at Lee Heights is reached; turn north on this road and 300 yards from the turn is where the Gardens are located.

THE SIMPSON IRIS GARDENS

Phone, Clarendon 1832

GLEBE ROAD, CHERRYDALE, VA

P. S.—But still important: A catalog will be sent upon request.

NEW AND RARE PLANTS

Mostly collected by the Arnold Arboretum of Harvard University

We grow a very fine collection of choice, new and rare plants, many of which have been introduced by the well-known plant collector, E. H. Wilson. Each variety has been tested for hardiness in the rigorous climate of New England before being offered.

Our complete Garden Annual lists many of the finest introductions as well as the best standard varieties of seeds, bulbs and plants. A copy will be sent postpaid on request.

R. & J. FARQUHAR COMPANY

6 South Market Street

BOSTON, MASS.

THE WAYSIDE GARDENS CO.

MENTOR, OHIO

E. H. SCHULTZ, *President*

J. J. GRULLEMANS, *Secretary-Treasurer*

Hardy Herbaceous and Alpine Plants

The demand for high-grade field-grown plants and the higher standard of gardening now practiced by every one has created the natural desire to grow everything of the best. Our fine strains of Delphiniums, Phlox, Peonies, Iris, and hundreds of other Perennials and Alpine Plants are, therefore, in greater demand than ever, and each succeeding season brings many additions to our already large list of clients throughout the United States.

Every known worth-while rock plant that will grow satisfactorily for you is now to be found in our collection. Rugged, field-grown, 2 or 3 years old, ready for immediate results.

Plants we stand back of, and packed so they will arrive in perfect condition.

We will, without charge, cheerfully replace any that do not.

Catalogue on Request



For Members Only

Have you secured one new member for the organization this year? The fact that you are a member indicates, we hope, not merely curiosity, but a genuine interest and support of the organization. Your continued membership is the first proof of your loyalty. A new member brought in through your effort is the seal of your good works.



RARE HARDY PLANTS WILD FLOWERS FINE ROCKERY MATERIAL IN POTS

Send for List

FRANK W. CAMPBELL
7521 Dunedin Street DETROIT, MICH.

HUMUS

means better flowers, lawns and vegetables. At the price sold nothing equals it as a

FERTILITY MAKER

\$5.00 for 5 100-lb. bags—\$18.00 per ton f. o. b.
Stanhope, N. J.

H. B. PRINDLE

Send for cultural directions

70 East 45th Street NEW YORK

BEAUTIFUL SUMMER-FLOWERING BULBS

Tigridia pavonia (Shell Flower, Mexican Tiger Flower),
a big, gorgeous thing; dozen, \$1.50

Zephyranthes rosea (Fairy Lily), showy and dainty;
dozen, 50 cents

EDWIN C. POWELL, Silver Spring, Md.

STUMPP & WALTER CO.

HIGH QUALITY

Seeds, Bulbs, Plants
Insecticides, Fertilizers
Garden Sundries

CATALOG ISSUES


January 1st	GARDEN ANNUAL
May 1st	ADVANCE BULB
July 1st	MIDSUMMER
September 1st	FALL BULB

If you are a garden enthusiast and are not on our mailing list, write for a copy.

STUMPP & WALTER CO.

30-32 Barclay Street

NEW YORK CITY



THE **W. B. SHAW**
AQUATIC
GARDENS

KENILWORTH
WASHINGTON, D. C.

Waterlilies

for Your Garden

—add a new note of interest—
and are easy to grow.

75 Varieties

Hardy lilies may be
planted from early Spring
thru August—tender lilies
in May and June.

**FLOWERS the first
summer**

Other
AQUATICS
Also

IMPORTED GRANULATED PEAT MOSS TORF MULL

Few of nature's products are of such manifold usefulness in maintaining soil fertility as Granulated Peat Moss. It is the material which most Professional growers use and you know they secure admirable results. It more fully meets the popular favor than any other medium at any price.

"G. P. M." Peat Moss is a natural moisture conserver. Mixed with soil it holds plant food in solution for roots to assimilate. Heavy soils it renders friable and workable, freeing soluble salts in the clay. Sandy soils are compacted, humus encouraged, leeching prevented, and water held at levels available to roots.

No better mulch can be offered than "G. P. M." Peat Moss. Contains no noxious bacteria or fungi. Not a weed seed can be found in it. For Evergreens, Shrubs, Roses, Rhododendrons, Fruit Trees, in short, all growing things are benefited by mulching with Peat Moss. By keeping down weeds it saves labor.

Write us for our comprehensive booklet which explains everything. Better still, order a bale on our "say-so" and prove it for yourself. After you have used it we will have gained you as a friend as well as a customer.

"G. P. M." Peat Moss comes in burlapped bales containing sufficient to cover at least 240 square feet one inch deep. It is shipped from a point near you and the cost is nominal. Write for prices and small sample.

ATKINS & LURBROW, Inc.
G31 Burling Slip, New York



Members please mention
The National Horticultural Magazine
in writing to advertisers.

APPLICATION FOR MEMBERSHIP

I desire to be admitted to.....membership in THE AMERICAN HORTICULTURAL SOCIETY. Remittance of \$3.00 is enclosed (of which the sum of \$2.00 is for a year's subscription to the National Horticultural Magazine).

Name.....

Address.....

Special interest.....

Date.....

Recommended by:

Checks should be made payable to The American Horticultural Society and sent to D. Victor Lumsden, Secretary, 1629 Columbia Road, Washington, D. C.

The American Horticultural Society

A Union of The National Horticultural Society and The American Horticultural Society

The Society publishes The National Horticultural Magazine, a quarterly journal issued in January, April, July and October to all its members. It publishes special bulletins from time to time as material warrants special issues.

Former bulletins of the Society may be secured from the secretary as long as copies are available. Back numbers of the magazine are also available in limited quantities.

BULLETINS:

No. 1. The Effect of Aluminum Sulphate on Rhododendron Seedlings, by Frederick V. Coville	\$2.00
No. 2. Roses for America, by F. L. Mulford	1.00
No. 3. Insect Pests of Our Gardens and Their Control, by C. A. Weigel	1.00
No. 4. Soil Reaction in Relation to Horticulture, by Edgar T. Wherry	1.00

CLASSES OF MEMBERSHIP:

Annual Members.—Persons who are interested in any branch of horticulture who shall pay annual dues of three dollars.

Affiliated Members.—Horticultural societies, garden clubs, societies devoted to special interests, or other local or district organizations interested in horticulture may become affiliated members. Any organization eligible for affiliation shall make application to the Board of Directors, who shall act upon it. An affiliated member shall pay annual dues of \$3.00 and shall be entitled to the same benefits and privileges as an annual member, including one copy of all publications. Additional copies of publications will be furnished at the rate of \$2.00 per year. All publications for an affiliated member shall be sent to one address.

Life Members.—Persons interested in the purposes of the Society, who shall pay one hundred dollars.

Patrons.—Persons interested in the objects and aims of the Society who contribute two hundred dollars or more towards its support.

Checks should be made payable to The American Horticultural Society and sent to D. Victor Lumsden, Secretary, 1629 Columbia Road, Washington, D. C.

PRESS OF
H. L. & J. B. McQUEEN, INC.
WASHINGTON, D. C.

